Chapter 7: Recreation and Tourism

1 Overview and Key Findings

- Recreation is an integral part of the Delta, complementing its multiple resources and contributing to the economic vitality of the region. Nearby residents visit virtually every day, generating a total of roughly 12 million visitor days of use annually and a direct economic impact of more than a quarter of a billion dollars in spending.
- The Sacramento–San Joaquin Delta is an area where a diversity of recreation experiences is very evident; from the thrill of a speeding personal watercraft to the relaxation of canoeing or boat cruising through a winding tree-covered channel, from hunting game birds to the quiet observation of a flock of Sand Hill cranes, from studying the early history of Chinese workers to the tasting of local wines.
- While a percentage of visitors to the Delta come from elsewhere, the majority of visitors are from Northern California. These visitors represent the focal market for Delta recreation growth opportunities in the future, and their places of origin define the market area for this study. The total Market Area had a population estimate of approximately 11.9 million in 2010, with projections of 17.6 million by 2050.
- Based on demand models, recreation visitation for 2010 is estimated to be approximately 8 million *resource-related* (e.g., boating and fishing) visitor days of use per year, 2 million *urban parks-related* (e.g., golf, picnic, and turf sports), and 2 million *right-of-way-related* (e.g., bicycling and driving for pleasure) recreation visitors/year. The total number of activity days is conservatively estimated at approximately 12 million/year.
- Employment in recreation-related economic sectors within the Primary Zone has been relatively flat over the past 20 years.
- The principle changes and trends that could affect the present recreation use and demand over the next 50–90 years are: physical changes to the Delta, increasing population and development growth, increasing agri-tourism, and the likely desire for closer to home recreation.
- The current direct spending in the Delta region from *resource-related* and *right-of-way/tourism-related* trips is estimated at roughly $251 million inside the Delta (in 2011 dollars). Additional economic impacts associated with urban recreation are not quantified, but are likely significant.
- Delta recreation and tourism supports about 2,700 jobs in the five Delta counties. These jobs provide about $90 million in labor income, and a total of $152 million in value added to the regional economy.
- Delta recreation and tourism supports nearly 5,000 jobs across all of California, and contributes about $325 million in value added.
- When attracting visitors and expanding recreation access to waterways and landside recreation improvements, potential negative impacts on agriculture from increased tourism and recreation can be minimized by focusing recreation uses and activities through expansion of existing recreation sites, development in Legacy Communities, and creating buffer areas adjacent to agriculture.
- The future growth of recreation in the Delta consists of five location-based strategies which would emphasize:
  - Delta waterways, specialized by boating type;
  - Dispersed, small points of interest and activity areas, such as marinas, farmer's markets, wineries, restaurants;

- Focal point complexes, such as Legacy Communities or Bethel Island/Jersey Island/Big Break;
- Natural habitat areas; and
- The edges of existing and emerging urban areas that surround the Delta, such as Stockton, Tracy, and Lathrop.

- A significant operational constraint for future growth in recreation demand is that there currently exists no Delta brand, overall marketing strategy, or significant-scale focal point area. An existing organization should be designated as a Delta recreation and tourism marketing and economic development facilitator.
- If resource quality and recreational facilities are maintained such that the Delta retains its current level of competitiveness as a recreation destination, baseline forecasts for visitation show increases of 3.4 million visitor days, or about 35 percent, over 40 years.
- Assuming that current visitor spending patterns remain unchanged and Delta business growth accommodates recreation-related spending increases, baseline visitation growth is estimated to increase spending in the Delta roughly $78 million (2011$) to about $329 million (2011$) by 2050.
- Possible policy scenarios are qualitatively evaluated as to their primary elements and their potential positive and negative impacts on recreation.
    - Scenarios evaluated may affect recreation visitation by a range of a decrease of approximately 23 percent to an increase of approximately 13 percent over the baseline scenario, with the largest potential for negative impacts from increased regulatory changes and the largest potential for positive impacts from the habitat conservation scenario.
    - Visitation changes would affect recreation-related spending in the Delta, with spending impacts ranging from increases of roughly 14 percent, a positive impact of $47 million, to decreases of 23 percent, a negative impact of $77 million, in 2050, as compared with the baseline forecast.
    - The largest potential negative impacts would result from regulation changes, six-island flooding, salinity increases in the central and south Delta, large tidal marsh creation in the south Delta, and intake and pumping stations near Clarksburg and Courtland.
    - Positive impacts could result overall through project enhancements to fishing, wildlife viewing and nature study, and Delta-as-a-Place.

2 Introduction

The Delta is a significant natural place in California—a mixture of meandering rivers, sloughs, back bays, shipping channels, small communities, historic sites, and agricultural islands with farm markets and wineries. It is a vast area, covering over half a million acres, with about 60 islands and over 650 linear miles of waterways and channels.

The Delta links California's Central Valley with the San Francisco Bay. It is surrounded by cities (some of which have historic roots) and urbanizing areas at the edge of the Delta, and its two primary rivers, the Sacramento and the San Joaquin.

Approximately 12 million people live within close proximity of the Delta, yet most do not see it as a vital water source for the state, as a rich biological resource, or as an important agricultural production area, although it is all of these. For most, the Delta is best known for the recreation opportunities found there.

The Delta gives visitors a place to slow down and relax, to taste earth's bounty, and to leave the urban areas behind. It is called California's boating paradise, and is one of the state's most important fishing and waterfowl hunting resources, a place with natural habitats for bird watching and nature study, and a scenic place to meander, and explore by boat or car.

Recreation is an integral part of the Delta, complementing its multiple resources and contributing to the economic vitality of the region. Nearby residents visit virtually every day, generating a total of roughly 12 million visitor days of use annually and a direct economic impact of more than a quarter of a billion dollars in spending.

3 Current Status and Trends

3.1 Understanding 'Delta as Place' Today

The Delta is difficult to characterize as both a region and, likewise, a recreation destination. Unlike well-known water recreation destinations such as Lake Tahoe or Shasta Lake, the Delta is not a single entity and cannot easily be conceived in its entirety. It has highly varied physical attributes and covers a vast and varied landscape that can be viewed and accessed from activity points that are so disparate, it is possible to repeatedly visit the Delta and still have little understanding of exactly what the Delta is or how large it is.

Extending more than 50 miles from north to south, the Delta is sometimes centered on a wide river, though more often it is a network of narrow channels, sloughs, and islands. It presents itself from two distinct vantage points, each of which represents a completely different character. One view is from the water, where the landscape typically lies, unseen, behind tall levees and riparian vegetation, with only distant mountains visible. From the perspective of thicket-edged sloughs, narrow rock-faced channels, or spreading, open waterways, there is little landside context. The other view of the Delta, the landside perspective, largely precludes the water environment, which can be glimpsed primarily from levee-top roads and bridges. The predominant visual character landside is the agricultural landscape, which is as varied as the waterscape hidden on the other side of the levees.

This setting creates a place of paradox; it is a region that can be unapproachable and unapparent to visitors. For those who do not already know and visit the Delta, it can be a place that exists in name alone. Many people drive through the Delta without a clear sense of being in it and less notion of where it begins and where it ends.

Defining the Delta for visitors and recreation users is a necessary and yet difficult task. Because of the scope of the disparate environment, recreation destinations appear as a network of smaller recreation locations, each one suited to a different type of activity. To windsurfers, the open and windy waters of the larger channels near Brannan Island and Rio Vista might define the Delta. Sailors coming up from San Francisco Bay would use the same area, but define the Delta as offering protected deeper channels and coves. Water skiers and wake boarders might define the Delta by its protected narrower and straighter channels to the south, near Discovery Bay. Fishermen will be attracted to other aspects of the Delta, with differing characteristics, as varied as the fish they are seeking. So, too, kayakers, canoeists, pleasure cruisers, house-boaters, birders, hunters, and others, each seeking an aspect of the Delta specific to their interests and water-based pursuits, will define the Delta in their own specific terms.

Recreationists from the landside may see a completely different Delta. Shoreline fishermen share the environment seen by those on the water and from the few recreation sites on land, such as campgrounds and picnic areas. Hunters working fields and the edges of sloughs might never see open waterways as they seek game. For the vast majority of visitors to the Delta who never reach the water’s edge, the landscape will be essentially one of agricultural fields, levee roads with river views, wineries and produce outlets, and sometimes, perhaps a Legacy Community’s historical or cultural landmarks.

3.2 Existing Physical Conditions

3.2.1 Resource and Facility Analysis

3.2.1.1 Existing Facilities

In the Delta, people seeking recreation experiences primarily go to private enterprises, including marinas, restaurants, retail establishments, wineries, and farm stands. Public recreation facilities exist, but they are limited and many are natural resources-based, restricted-use areas such as the Department of Fish and Game’s Wildlife Areas and Stone Lakes National Wildlife Refuge. Private nonprofit organizations, such as The Nature Conservancy and Solano Land Trust, also provide recreation opportunities, which generally are related to habitat areas.

3.2.1.2 Private Facilities

Marinas are a common Delta access point for water recreation. Of the 95 marinas surveyed in 2001 as part of *The 2002 Sacramento-San Joaquin Delta Boating Needs Assessment,*[63] 92 were private and three were public facilities. Of the 92 private facilities, 87 were open to the public and five were private membership-based yacht clubs. These 92 private marinas provided a number of facilities to the Delta boater, including boat slips, launch ramps, parking, restrooms, picnic facilities, camping sites, pumpouts, and fuel stations. Current data regarding business establishments in the Delta indicate that the number of marinas has not changed significantly since the early 2000s. Figure 25 provides a map of recreation zones and Figure 26 shows recreation facilities. Table 24 summarizes all facilities, as of 2002, by recreation zone with additional information about these zones.

The Delta’s other major private recreation facilities are the numerous private hunting clubs, which typically are associated with agricultural lands. Very little information exists on the number of these facilities or the number of hunters who utilize them. In a 1997 survey, the Delta Protection Commission identified 23 private hunting facilities, most in Yolo County. Conversations with hunters indicate that many additional formal and informal hunting clubs are located throughout the Delta.

Private non-profit organizations, such as The Nature Conservancy and the Solano Land Trust, also provide for some public recreation on facilities that they manage. The Cosumnes River Preserve includes lands owned by both public and not-for-profit organizations such as Bureau of Land Management, Department of Fish and Game (DFG), Department of Water Resources (DWR), The Nature Conservancy (TNC), Ducks Unlimited, Sacramento County, and the State Lands Commission. The preserve has a visitor center with picnic areas, interpretive displays, restrooms, and three designated hiking trails and allows bird watching, photography, hiking, and paddling.

[63] DBW 2002

Additional private facilities include those catering to Delta-as-a-Place recreationists and tourists, including restaurants, agricultural stands, and wineries. A recent study found 25 attractions/historic places, 17 farmers markets, and nine wineries/tasting rooms (Figure 27).

Table 24 Summary of Facilities and Resources by Recreation Zone

	Recreation Zones						
	Northern Delta Gateway (North)	Bypass (Northwest)	Delta Hub (Central)	Delta Breezeway (West)	San Joaquin Delta Corridor (East)	Southern Delta Reaches (South)	Total
Linear Miles of Contiguous Waterways	61	58	132	152	122	110	635
Number of Marinas	8	1	12	56	13	5	95
Boat Slips	988	76	1,271	5,990	2,786	563	11,674
Transient Tie-Ups	20	18	69	115	69	18	309
Launch Ramps	3	1	9	27	11	4	55
Marina Parking Spaces	522	38	918	4,826	1,989	432	8,725
Day-Use Picnic Sites	40	0	52	183	26	23	324
Camp/RV Sites	54	0	247	1,501	327	53	2,182
Fuel Stations[64]	3	0	7	28	12	6	56
Source: DBW 2002, Table 2-1, Page 2-5							

[64] A phone and internet survey was completed as part of this project to update the total number of fuel stations. Upon phoning or viewing websites of the marinas previously identified as having fuel stations, it was found that currently (July, 2011) 43 of the prior-identified 56 marinas still have fuel docks, 7 indicated they no longer provide this service, and six had phone lines that had been disconnected. However, the numbers in Table 24 are left as is, as those were taken directly from the DBW 2002 survey and other numbers have not been updated.

Figure 25 Delta Recreation Zones

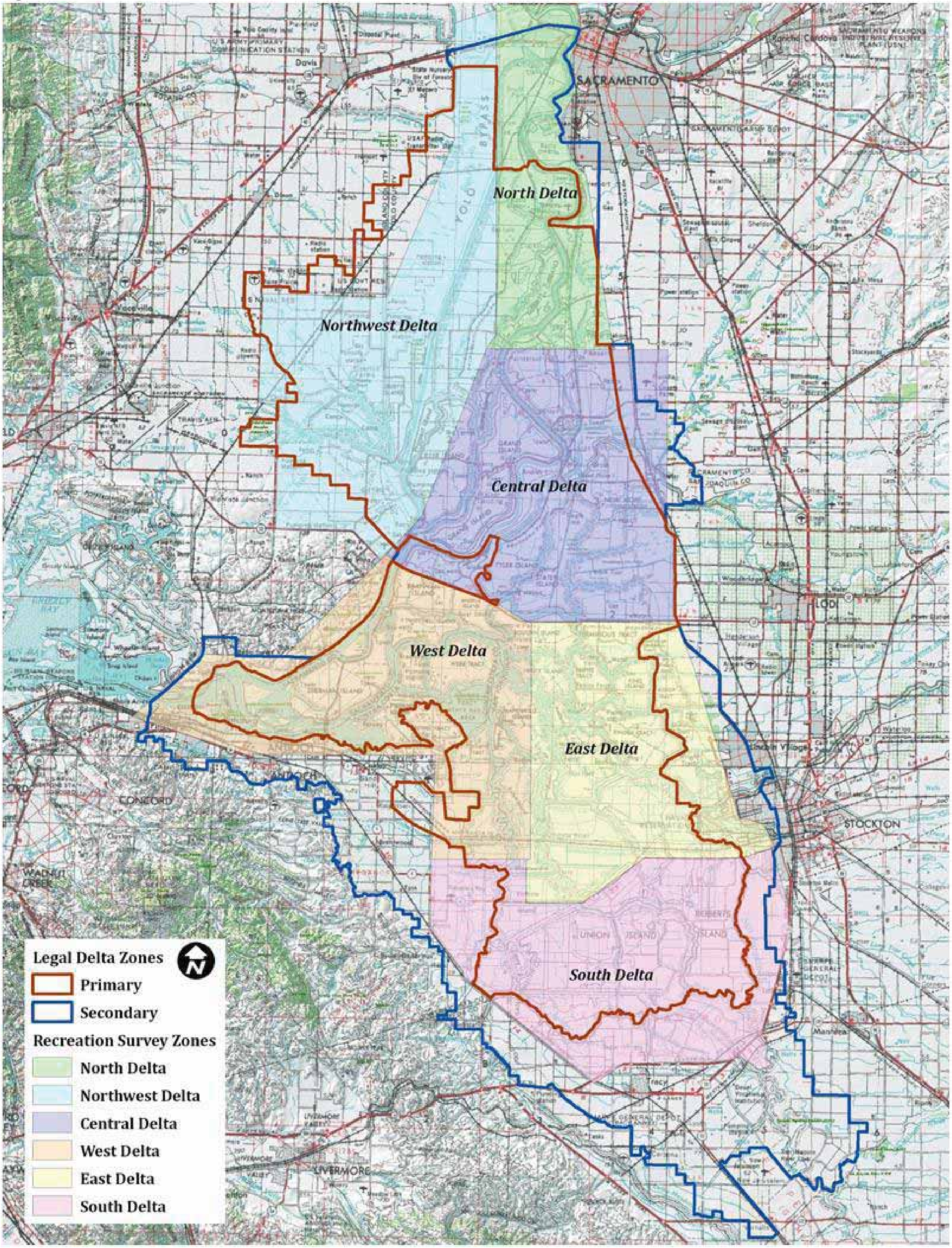


Figure 26 Delta Recreation Facilities

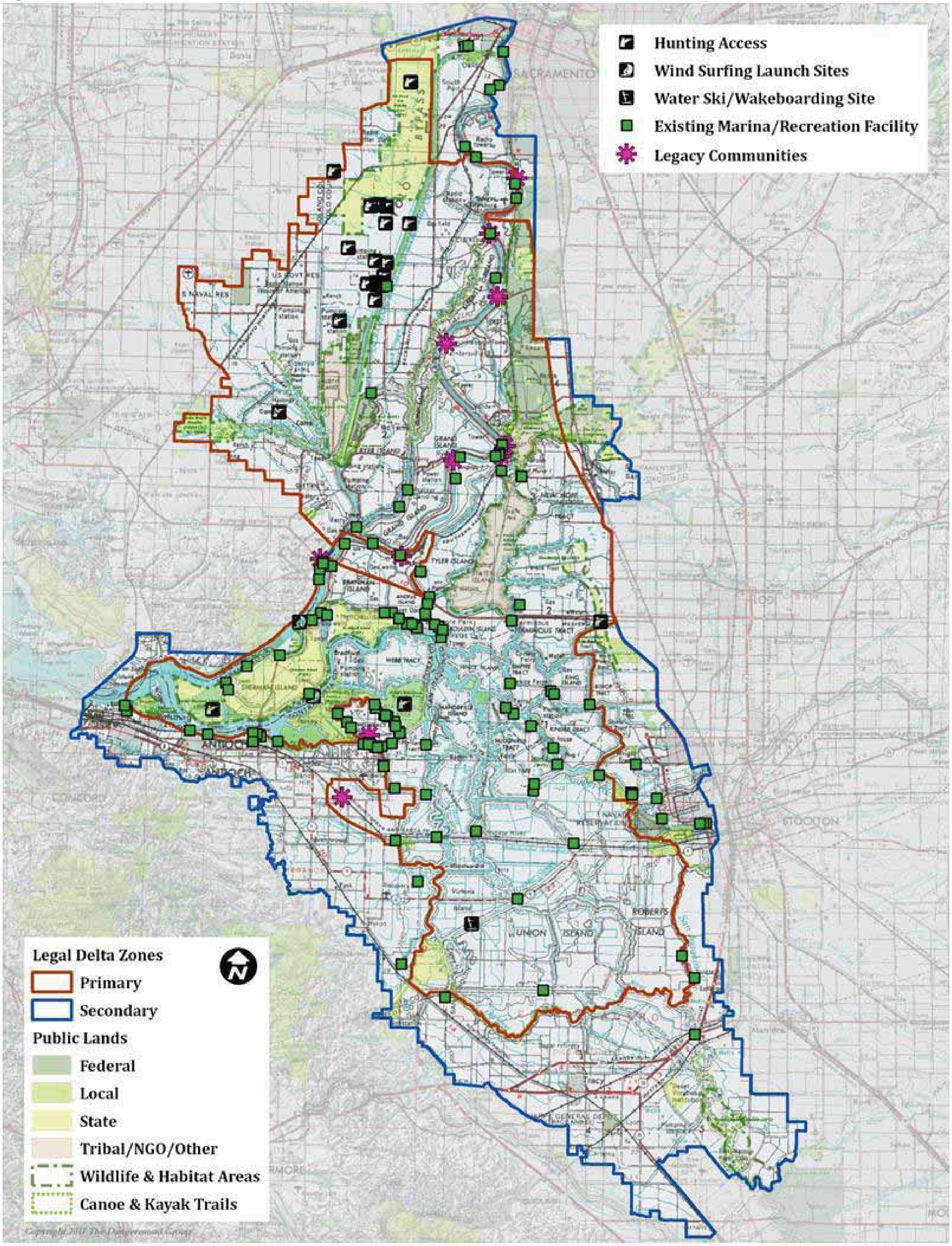
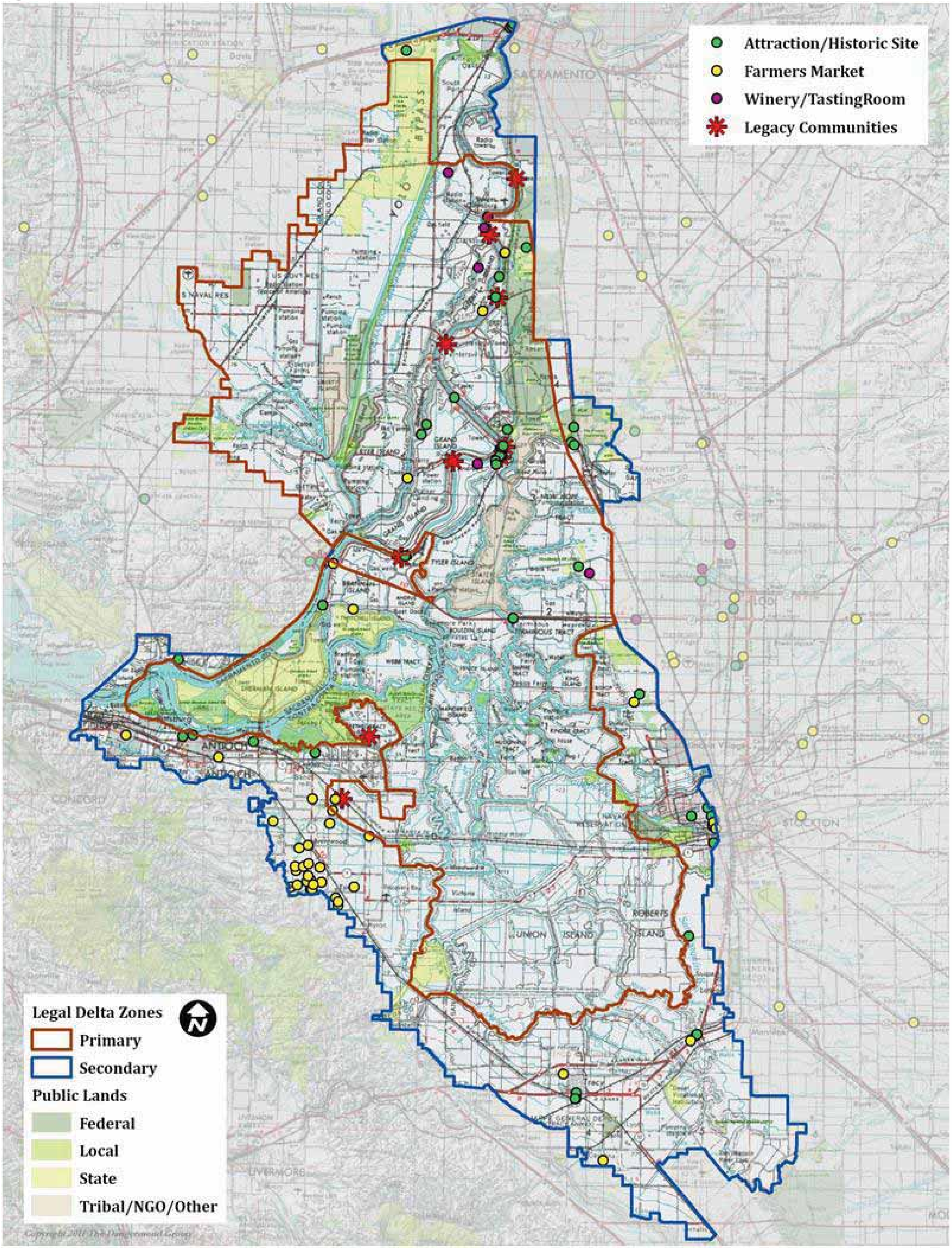


Figure 27 Delta Tourism Facilities



3.2.1.3 Public Facilities

There are a number of publicly-owned lands in the Delta, covering almost 40,000 acres. A percentage of these lands is open to public recreation access, including hiking, day use, fishing, hunting, and wildlife viewing. Stone Lakes National Wildlife Refuge is the largest public facility, with 6,200 service-managed acres within its 18,000-acre boundary, but provides limited public access in the form of waterfowl hunting, guided hikes, special events, bird watching, and canoe/kayak tours. Brannon Island State Recreation Area provides some of the best public facilities in the Delta, including three group picnic sites, 300 general picnic sites, 78 miles of non-motorized trails, grassy areas, a campground with 102 developed sites, and six group camping sites.[65,66] The Department of Fish and Game owns and manages a number of Wildlife Areas, including Acker Island, Lower Sherman Island, Sherman Island, Woodbridge Ecological Reserve, and Yolo Bypass Wildlife Area. These facilities provide for a variety of activities, from bird watching tours to hunting, fishing, wildlife viewing, and education.

A number of public access trails exist or are in development, including the American Discovery Trail, Mokelumne Coast-to-Crest Trail, and the Great Delta Trail. These trails currently support or will provide public access for a variety of recreation activities, including hiking and biking. Additionally, State Highway 160 is a designated State Scenic Highway.

There are also a number of local and regional parks within the Delta, including those provided by the cities of Tracy, Stockton, and Lathrop, the counties of Sacramento, San Joaquin, and Yolo, and regional providers such as East Bay Regional Parks District. Figure 27 above lists some of these public facilities.

3.2.1.4 Recreation Enterprises in the Delta

A variety of data on business enterprises in the Delta describe economic activity attributable to recreation and tourism. As seen in Table 25 below, nearly 100 business enterprises within the Primary Zone are recreation-related. In the Secondary Zone, there are nearly 1,500 recreation-related enterprises, though many businesses likely provide for broad urban and non-local recreation opportunities in addition to serving Delta recreation.

Within the recreation-related businesses, the detail for “Accommodations” was further expanded and is presented in Table 26. There are very few choices for recreation travelers for overnight accommodation within the Primary Zone. The only establishment that provides rooms within the Primary Zone is the Ryde Hotel. There are a number of additional hotels, motels, and bed and breakfasts within the Secondary Zone; however, they seem to primarily cater to travelers through the area, rather than Delta recreationists. Also, as listed above in Table 24, there are approximately 2,100 campsites within the Delta.

[65] State Parks 2010, p. 20-21.
[66] This site is on the State Parks closure list and may be closed to public access as of July 1, 2012.

Table 25 Data for Recreation-Related Enterprises within the Legal Delta in 2008[67]

	Primary Zone	Secondary Zone
Industry	**Number of Establishments**	**Number of Establishments**
Boat Building	1	19
Recreational Vehicle Dealers	0	4
Boat Dealers	8	30
Scenic and Sightseeing	0	2
Performing Arts, Spectator Sports, and Related Industries	4	208
Museums, Historical Sites, and Similar Institutions	1	16
Amusement, Gambling, and Recreation Industries (including marinas)	34	255
Accommodation	22	148
Food Services and Drinking Places	26	778
Total	96	1,460
Source: NETS; UOP		

Table 26 Accommodations within the Delta

	Hotels, Motels, and B&Bs	
	Number of Establishments	**Number of Rooms**
Primary Zone	1	32
Isleton and Rio Vista	4	56
Secondary Zone	70	4,451
Delta Total	75	4,539
Note: There are also 84 small cabins available for rent in campgrounds, and 31 additional rooms available for special events, primarily weddings at Grand Island Mansion.		
Source: NETS, UOP		

3.2.1.5 Physical Constraints

There are several physical constraints related to Delta recreation which are detailed in *The Aquatic Recreation Component of the Delta Recreation Strategy Plan.*[68] The following constraints have an impact on current facilities and recreation access and are described in more detail below.

- Sediment accumulation in channels and waterways/shallow water
- Water gates, screens, and barriers
- Invasive aquatic vegetation that congests waterways
- Waterway obstructions such as snags, submerged debris, and floating objects
- Water quality
- Highly sensitive habitat areas which restrict public access
- Private lands with restricted public access/agriculture-recreation conflicts
- Lack of boating destinations, particularly beach frontages
- Lack of fishing access from the shore and boat launches

[67] Boat repair services were also examined. In total there are 37 establishments offering boat repair services - 5 in the primary zone and 32 in the secondary zone. These establishments are included in Table 25 under Marinas, Boat Dealers and Boat Builders.
[68] DPC 2006, pp. 56-69

Sediment Accumulation in Channels, Waterways, and Marinas

Sediment deposits and siltation affect both Delta waterways and marinas. For instance, silt can accumulate from three to eight feet in a given year at marina facilities along the Sacramento River. Sedimentation has led to the closure of marinas and boating facilities in severely-clogged channels.

The stringent regulations and lengthy, complex permit requirements for dredging silt out of channels and marinas burdens marina owners and boating facility operators. Marina operators have stated that dredging-related regulations should be streamlined or better coordinated among regulatory agencies to provide marina owners more flexibility in the removal of silt materials. In addition, channel dredging for levee maintenance is currently being slowed by the same regulation/permitting constraints.

The U.S. Army Corps of Engineers is spearheading a multiple-agency process called the Delta Dredged Sediment Long-Term Management Strategy (LTMS)[69] that aims to, among other goals, clarify the permitting process relative to Delta dredging and reuse projects. They are working to create an effective multi-agency task force called the Delta Dredging and Reuse Management Team (DDRMT), similar to the inter-agency Dredge Material Management Office (DMMO) which exists in San Francisco Bay. They are also working on drafting a Joint Permit Application.[70]

Water Gates, Screens, and Barriers

The Delta Cross Channel and gates, located in Walnut Grove, is an important link for recreational boaters. Although originally built just for water management, it allows, when open, for direct access to some of the most popular boating areas in the Delta. In recent years, it has been open most days per year, but operation periods are variable and boaters typically do not know in advance whether it will be open or not. It addition, its dimensions do not allow for use by larger boats or sailboats. In spite of its limitations, the Delta Cross Channel has been beneficial to recreational boaters.

Other gates, screens, and barriers that exist throughout the Delta include Montezuma Slough Salinity Gates, South Delta Temporary Barriers (operated by DWR), and a wide variety of bridges and drawbridges. The proposed Two-Gates project has been developed by the U.S. Bureau of Reclamation and the Department of Water Resources. This project would install gates on Old River and Connection Slough in order to manipulate the flow of turbid water to keep Delta smelt away from export facilities.[71] This proposed project, currently on hold, would install temporary barriers along two waterways used by boaters.

Invasive Aquatic Vegetation

Two non-native plants that have invaded the Delta are water hyacinth and *Egeria densa*. Water hyacinths float on the surface as well as root along shorelines, while *Egeria densa* is a subsurface water weed. By the 1980s severe infestations of water hyacinth had clogged navigation channels and marinas, creating problems for marina owners, safety hazards for boaters, and issues for the native ecosystem. *Egeria densa* forms dense, submerged mats of vegetation, which can accentuate the process of siltation (discussed above), be dangerous for swimmers, and create operational problems for both boaters and water infrastructure. DBW has primary responsbility for removing water hyacinth and *Egeria densa*, though the program is

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[69] For more information, see http://www.deltaltms.com/index.htm
[70] http://www.deltaltms.com/DredDispReusePer.htm
[71] http://www.usbr.gov/mp/2gates/docs/2-Gates_Factsheet_latest.pdf and http://www.water.ca.gov/deltainit/docs/TwoGatesProject.pdf

underfunded compared to the magnitude of the problem. More recently, South American Spongeplant (*Limnobium laevigatum*), a floating plan similar to water hyacinth, has been found in California waterways and is being watch by local and state agencies for potential infestations[72].

Waterway Obstructions

Prior studies have repeatedly cited water obstructions as a significant problem for boaters. The Franks Tract area has been identified as an especially dangerous area for boating because it was once a levee-protected island and now, although flooded, is shallow and obstructed by submerged levees and vegetation debris.

Snags, debris, floating logs, and abandoned vessels in the river and sloughs are very dangerous to boaters throughout the Delta. Until about 20 years ago, U.S. Army Corps of Engineers was responsible for keeping the waterways clear but no longer provides that service. The responsibility has fallen to local county sheriffs' departments, which lack the manpower, proper equipment, and funding to adequately provide obstruction-removal services and to remove the seasonal "crop" of flotsam that follows winter high-water flows.

Water Quality

Surveys of boaters utilizing the Delta have frequently revealed water quality as the top or one of the top-mentioned concerns or issues. In a survey conducted as part of the S*acramento–San Joaquin Delta Boating Needs Assessement,*[73] 74 percent of large boat owners and 79 percent of small boat owners identified water quality as an attribute of concern in the Delta. Concerns associated with water quality included risks or perceived risks related to body contact, possible sewage contamination, aquatic weeds, and water clarity.

Boating Destinations

Surveys of boaters also have found a high desire for more boat-in destinations within the Delta.[74] These requests tend to take three different forms.

1. Major boat-in, mooring, and camping attractions, such as the Delta Meadows.
2. Numerous smaller day-use areas with restrooms, picnic, and beach facilities.
3. Additional convenience docks adjacent to Legacy Communities, such as that established adjacent to Walnut Grove.

These facilities can create problems for adjacent agricultural interests. If development of such new areas is contemplated, they should be placed adjacent to public lands or in areas that avoid the risk of trespass, vandalism, and other conflicts.

Highly Sensitive Habitat Areas

There are several existing proposals (e.g., Delta Plan, Ecosystem Restoration Program) to expand and enhance habitat areas in certain waterways and islands. Conflicts can occur between recreational boating and habitat interests, depending on the boating activity, speed, motor, seasons, and frequency. Additionally, conflicts may result if the public is precluded from any recreational access in these proposed restored-habitat areas.

[72] Akers, Patrick. Aquatic Weed Integrated Vegetation Management Plan – Contra Costa Delta. Updated 10/9/2010. Found at http://www.delta.ca.gov/res/docs/Spongeplant%207%2028%2011.pdf
[73] DBW 2002, p. 4-23
[74] DBW 2002, p. 3-12 – 3-14

3.3 Existing Operations Condition

There are several operations-condition issues and constraints that were also described in *The Aquatic Recreation Component of the Delta Recreation Strategy Plan.*[75] A summary of the potential operational constraints discussed include user group conflicts, water management related constraints, and regulation and law enforcement issues. Most of these issues are compounded by the lack of an overall responsible agency throughout the Delta, due to the overlapping jurisdictions of several counties and cities.

The diversity of boating activities in the Delta, from high-speed wakeboarding and personal watercraft (PWC) usage to fishing and non-motorized craft (e.g., canoe, kayak) results in conflicts between some user groups. Such conflicts are normally just a lack of common courtesy, rather than citable offenses. However, when one responsible entity manages water recreation use, basic rules and regulations can be established to avoid conflicts. A single responsible entity or common set of regulations does not generally exist in the Delta, with the exception of “No Wake Zones” adjacent to marinas. In addition, marine patrol is fractured between ten different agencies over five counties. Safety laws are the primary concern, along with enforcement of pollution laws, speed violations, negligent operators, equipment violations, lack of life jackets, alcohol consumption, and poaching.

Another serious and common problem is trespass on private property. Frequently, trespass violations stem from recreationists’ misunderstanding of what property is public and what is private. Clear signage, however, does not deter those who desire to use a specific area.

The lack of jurisdictional coordination, with no single agency ultimately responsible for management, has left an absence of adequate, coordinated waterway maintenance and security in order to enforce regulations and control user group conflicts. Additionally, there is a lack of information sources about the Delta to assist recreation users who are unfamiliar with the Delta.

The regulatory structure in the Delta is complex, with local, state, and federal regulatory agencies imposing many overlapping layers of law on private businesses. Many of these policies and plans are summarized in Chapter 3. In many cases, regulations that are created to protect the Delta environment also inhibit the functioning of recreation-related businesses. One example is the number of agencies that have input into the permitting process required to dredge a marina. Those can include up to three federal agencies, seven state agencies, and three local agencies; the process can take upwards of two years.[76]

Other primary issues and operational risks that affect recreation and its economic potential include aging marinas and other infrastructure, lack of dredging, threatened public parks closures, continued lack of public funding for law enforcement and operations and maintenance of public facilities, development encroachment, flood and earthquake risk, rising sea level, water conveyance management changes, and increasing traffic.

[75] DPC 2006, pp. 56-69
[76] DPC 2006, p. 59

3.4 Visitation and Demand

3.4.1 Defining Market Area

In order to describe the economic impact of recreation on the Delta economy, the market area for Delta recreationists needs to be defined and planners need to understand what percentage of users come from Delta counties, surrounding counties, Southern California, the western region of the United States, and beyond national borders.

In *The Sacramento-San Joaquin Delta Boating Needs Assessment,* which included the most recent survey taken of Delta recreationists, the concepts of the Delta Primary and Secondary Market Areas were introduced.[77] A survey of statewide registered boat owners found that 77 percent of respondents who reported they had recently boated in the Delta resided within approximately 75 miles of the Delta. This area was designated as the Primary Market Area for the Delta and included the counties of Alameda, Calaveras, Contra Costa, Marin, Napa, Sacramento, San Francisco, San Joaquin, San Mateo, Santa Clara, Santa Cruz, Solano, and Stanislaus. The study further defined a Secondary Market Area which represented the point of origin of another 8 percent of all Delta boating trips. The Secondary Market Area includes the counties of Amador, Colusa, El Dorado, Lake, Mariposa, Mendocino, Merced, Monterey, Placer, San Benito, Sonoma, Sutter, Tuolumne, and Yolo. Combined, the Primary and Secondary Market Areas represent approximately 85 percent of all Delta boating visitors (Figure 28).

Although this concept was developed for boating recreation, it is applicable to Delta recreation as a whole. While some visitors to the Delta do come from Southern California, out-of-state, and international locations, the majority of visitors are from Northern California. These visitors represent the focal market for Delta recreation growth opportunities in the future. Population statistics and trends for the Market Area are presented in Table 27. Activity participation numbers and demand models will focus on this area. In summary, the total Market Area had a population estimate of approximately 12 million in 2010, with projections of 17.6 million by 2050.

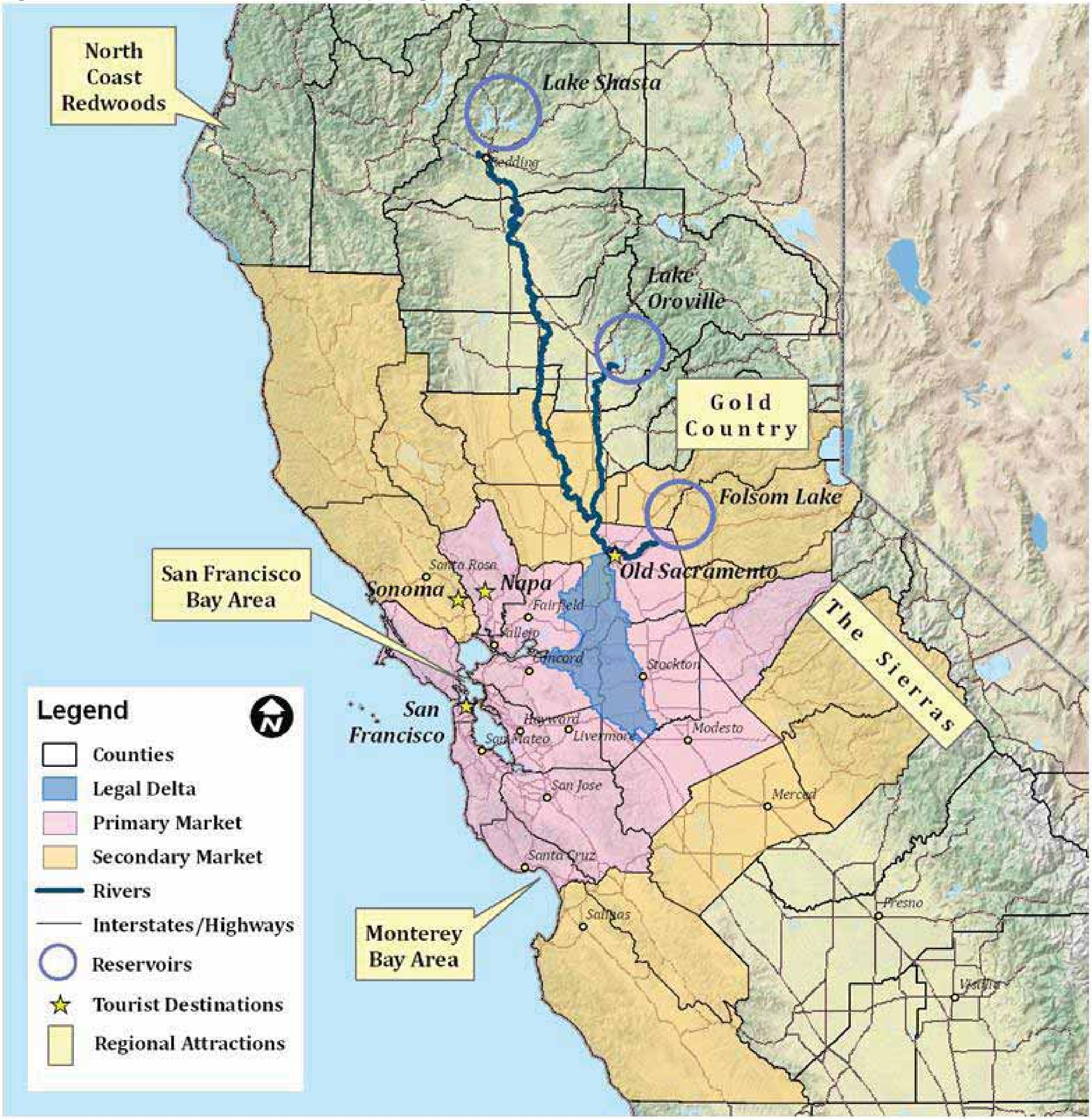
Table 27 Population Projections for the Primary and Secondary Market Areas

	2010	2020	2030	2040	2050
Market Area Population (millions)	11.9	13.4	14.9	16.3	17.6
Growth Rate		12.7%	10.8%	9.3%	7.9%
Source: Global Insight Forecast Calibrated to the 2010 Census Results					

When thinking about the Market Area for Delta recreation, it is also important to consider the other recreation areas that are competing for participants and their dollars. Within Northern California, competition is strong. Residents of the Market Area have several different natural resource-oriented destinations that they could visit. Boaters can visit several reservoirs throughout Northern California, including Shasta Lake, Lake Oroville, and Folsom Lake, or can recreate on the San Francisco Bay. Anglers can fish in the numerous reservoirs, but also in the streams and rivers feeding those lakes and reservoirs, such as the Feather River, American River, and Sacramento River. People visiting historic or cultural areas can also visit Old Sacramento, Gold Country, or San Francisco. Wine tourists can visit Napa, Sonoma, or the Sierra foothills. Other recreation and tourist destinations in Northern California include the Monterey Bay area, San Francisco Bay area, the Sierras, and north coast redwoods.

[77] DBW 2002, p. 6-4 - 6-6

Figure 28 Delta Market Area and Competing Regions



3.4.2 Statewide Recreation Survey/Study Summaries

In order to present an update on the current status and overall trends of recreation and tourism in the Delta, a multitude of sources is reviewed, ranging from U.S. Fish and Wildlife Service to Delta Protection Commission publications. Unfortunately, no one study or survey presents a complete picture of current recreation and tourism visitation and economic impact in the Delta. Summary information from relevant studies is presented below.

3.4.2.1 State Parks Surveys Recreation Demand Overview

State Parks completes a *Survey on Public Opinions and Attitudes on Outdoor Recreation in California* approximately every five years to comply with federal grant regulations and to "provide a comprehensive view of the outdoor recreation patterns and preferences of Californians."[78] This survey instrument represents the best, most recently available data on recreation preferences of Californians.

Statewide demand and participation rates for a sample of specific recreation activities that occur in the Delta are listed in Table 28. The most popular activities by participation rates are walking for fitness and pleasure, picnicking, and driving for pleasure, followed by visiting outdoor nature museums, attending outdoor cultural events, and visiting historic or cultural sites. The activities which enjoy the highest participation rates (e.g., people who participate tend to participate more often) are walking for fitness or pleasure, bicycling on paved surfaces, wildlife viewing, outdoor photography, driving for pleasure, and bicycling on unpaved surfaces and trails. State Parks also breaks down participation rates by region, but these regions do not overlap well with our defined market area. Thus, only statewide data is reported.

Table 28 Summary of 2008 Survey of Public Opinions on Outdoor Recreation in California Demand and Participation Rates for Selected Activities Statewide in California

Activity Type	Participation Rate	Average Annual Participation in Days
Walking for fitness or pleasure	74%	73
Bicycling on paved surfaces	36 %	38
Wildlife viewing, bird watching, viewing natural scenery	46%	27
Outdoor Photography	33%	26
Driving for pleasure, sightseeing, driving through natural scenery	60%	22
Bicycling on unpaved surfaces and trails	16%	20
Hunting	4%	17
Day hiking on trails	47%	16
Sail boating	6%	14
Fishing – freshwater	21%	13
Swimming in freshwater lakes, rivers and/or streams	31%	10
RV/trailer camping with hookups	11%	9
Motor boating, personal watercraft	15%	9
Visiting historic or cultural sites	55%	8
Picnicking in picnic areas	67%	7
Attending outdoor cultural events	56%	7
Camping in developed sites with facilities	39%	7
Visiting outdoor nature museums, zoos, gardens, or arboretums	58%	6
Paddle sports	15%	5

3.4.2.2 U.S. Fish and Wildlife Service

The U.S. Fish and Wildlife Service (USFWS) *2006 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation–California* presents findings from a survey completed every five years to measure the importance of wildlife-based recreation. The survey indicates that in 2006, approximately 7 percent of the total population in California participated in either hunting or fishing activities, while 21 percent of the population participated in wildlife watching. The results of the survey are summarized in Table 29. Both participation rates and average annual days of

[78] State Parks 2009

participation per year are lower than in the State Parks survey, which may be due to differing methodologies. USFWS also collects information on average trip expenditures.

Table 29 Summary of 2006 National Survey of Fishing, Hunting, and Wildlife-Associated Activities in California by Residents and Nonresidents

Activity Type	Participation Rate	Average Annual Days of Participation	Average Trip Expenditures Per Day Per Participant (2006$)
Fishing (Anglers)	6%	11	$62
Hunting (Hunters)	1%	12	$68
Wildlife Watching (Away From Home Participants)	21%	16	$44

3.4.2.3 State Registration and License Numbers

Another way to assess potential recreation demand is through an analysis of State registration and license numbers. These numbers represent actual numbers, rather than estimates of participation rates, and can help predict potential demand.

Registered Vessels

In California, owners of any sail-powered vessels over eight feet in length and any motor-driven vessel (regardless of length) that is not documented by the U.S. Coast Guard must register their boat with the Department of Motor Vehicles (DMV). Vessels propelled solely by oars or paddles (e.g. kayak, canoes) do not have to be registered. In 2010, statewide, DMV reported 810,008 vessel registrations. As registrations are also reported by county, the Primary and Secondary Market Areas can be highlighted. In 2010, there were 214,163 vessels registered within the Primary Market Area and an additional 103,408 within the Secondary Market Area.[79]

Resident Sport Fishing

In 2009, 1,179,312 resident sport fishing licenses statewide were issued by the Department of Fish and Game (DFG).[80] It is difficult to identify licenses by county, as DFG reports figures based on the county in which the license was sold, not by the origin county of the purchaser. However, DFG required all anglers who fished within the tidal influences of the Bay-Delta and downstream of dams within the watershed to purchase a Bay-Delta Sport Fishing Enhancement Stamp from 2004 to 2009. In 2009, 284,641 anglers purchased that stamp. Although a portion of anglers who purchased that stamp may have only fished upstream of the Delta, those numbers seem to provide a general magnitude snapshot of anglers in the Delta (i.e., approximately 275,000 anglers recreated in the Delta in 2009). Using this number, combined with estimates from both USFWS and State Parks that anglers fish, on average, 12 days per year, results in approximately 3.3 million fishing activity days in the Delta in 2010. Note, however, that this number does not differentiate between shore anglers or those who fish from a boat.

Hunting

In 2009, the State issued 1,056,556 game bird hunting licenses and 1,683,445 general hunting licenses, which is approximately 6 percent of the adult California population. The hunting percentage tracks well with demand numbers from State Parks. There is not a way to directly relate these licenses to the Market Area.

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[79] http://www.dbw.ca.gov/PDF/VesselReg/Vessel10.pdf
[80] http://www.dfg.ca.gov/licensing/

3.4.3 Delta-Specific Recreation Survey/Study Summaries

There are several Delta-specific studies that have been completed over the past 20 years regarding recreation. Those are summarized below.

3.4.3.1 Sacramento-San Joaquin Delta Boating Needs Assessment

As part of *The 2002 Sacramento-San Joaquin Delta Boating Needs Assessment,*[81] California boat owners were surveyed regarding their preferences and facility needs for boating in the Delta. The survey group was broken down into owners of large boats (equal to or greater than 26 feet in length) and small boats (less than 26 feet in length). In this statewide survey, 52 percent of all owners of large boats had boated in the Delta, with 68 percent of those having been in the previous two years. Conversely, only 40 percent of all small-boat owners had been boating in the Delta, with 61 percent of those having done so in the two previous years.

Combined with the survey information, the 2002 study also completed a demand forecast analysis of annual boating-related visitor days, estimated at 6.4 to 6.6 million in 2000 with a projected growth to 8 million by 2020.[82] This survey information provides the best estimate of boating-related recreation activity days in the Delta. However, it does not estimate the amount of expenditures for the boaters in the Delta. And, while boating and companion activities (fishing from a boat, swimming from the boat, etc.) represents one of the highest percentage of existing recreation uses in the Delta, it is not a full picture of all recreation.

3.4.3.2 Sacramento–San Joaquin Delta Recreation Survey

In 1997, State Parks published the *Sacramento–San Joaquin Delta Recreation Survey,* which separately surveyed boat owners and licensed anglers regarding their use of the Delta resources and how much money they spent recreating in the Delta.

The survey found that 23.5 percent of registered boat owners in California recreated in the Delta, spending an average of $11.75 outside the Delta and $17.20 inside the Delta (1996 dollars), a total of $28.95 per day per person. The survey also found 23 percent of licensed anglers in the state fish in the Delta, spending an average of $15.91 outside the Delta and $13.57 inside the Delta (1996 dollars), a total of $29.48 per day per person. The top five other recreation activities that boaters indicated they participated in included (in order of preference) sightseeing, viewing wildlife, fishing from shore, picnicking, and walking for pleasure. The top five non-fishing activities which anglers engaged in while in the Delta were sightseeing, boating, viewing wildlife, swimming, and walking for pleasure.

3.4.4 Delta Recreation and Tourism Visitation Estimates

There are few counts of visitor attendance in the Delta. Those that exist are limited and only represent a fraction of what is estimated to be the actual visitor count. Visitation numbers that do exist are presented in Table 30.

[81] DBW 2002
[82] DBW 2002, Table 6-11

Table 30 Summary of Actual Visitation to the Delta

Site	Numbers
Brannon Island SRA (day use, 2009)	88,459
Brannon Island SRA (camping, 2009)	36,069
Delta Meadows State Park (day use, 2009)	18,933
Delta Meadows State Park (camping, 2009)	2,155
Franks Tract SRA	24,305
Stone Lakes National Wildlife Refuge (USFWS) (approx.)	7,000
Cosumnes River Preserve (approx.)	70,000
Lower Sherman Island (DFG) (approx.)	5,000
White Slough Wildlife Area (DFG) (approx.)	12,000
Yolo Basin Wildlife Area (USFWS) (approx., includes student tours)	30,000
Sherman Island (Sacramento County)	25,000
Hogback Island Fishing Access (Sacramento County)	10,800
Clarksburg Boat Launch (Yolo County)	1,713
Belden's Landing (Solano County)	15,642
Sandy Beach Park (Solano County)	100,611
Dos Reis Park (San Joaquin County)	25,815
Mossdale Crossing Regional Park (San Joaquin County)	23,630
Oak Grove Regional Park (San Joaquin County)	84,058
Westgate Landing (San Joaquin County)	10,283
Isleton Crawdad Festival (approx.)	200,000
Rio Vista Bass Derby and Festival (approx.)	12,000
Totals	**796,480**
Sources: State Parks 2010, personal communications	

3.4.5 Visitation Estimates by Recreation Activity Types

As actual visitor counts are lacking, visitation must be estimated. One way to estimate visitation is by looking at overall participation estimates based on survey data, such as that collected by State Parks. These participation estimates can then be related to the Market Area population to derive estimates. However, participation rates vary over time as recreation activities become more or less popular.

Section 3.4.2.1 presented information regarding participation in selected activities that occur in the Delta from the most recent State Parks *Survey on Public Opinions and Attitudes on Outdoor Recreation in California.* As this survey has been taken approximately every five years, it is also a useful tool in looking at activity participation rate changes over time. In general, the activity types in which Californians participate and the level of participation have varied over time in specific activities, such as freshwater fishing, backpacking, wildlife viewing, sports, swimming in a pool, etc. Over various surveys, State Parks has changed certain categories, listing 42 activity categories in 1992, to 55 in 2002, and 39 in 2008. It is difficult to track trends in individual activity categories due to changes in survey methodologies and questions. However, the percentage breakdown between three broad clusters of recreation activities has tended to remain relatively constant.

Resource-related recreation includes that which occurs in both natural and historic resource-related areas, including state and national parks, forest service lands, nature areas, reservoirs, rivers, the ocean, mountains, etc. Types of resource-related recreation include wildlife viewing, hunting, fishing, boating, hiking, beach activities, camping, skiing, snowboarding, and swimming in lakes, rivers, and the ocean. Since 1992, approximately 25-30 percent of all recreation has been resource related in California.

Urban Parks-related recreation includes those activities that generally take place in developed parks, such as using play equipment, swimming in a pool, using open turf areas, golf, tennis, and team sports. Since 1992, urban parks-related recreation has represented approximately 16-23 percent of all recreation activity days.

Right of Way/Tourism-related recreation represents the largest levels of participation over time and includes jogging, walking, bicycling on paved surfaces, driving for pleasure, off-highway vehicle use, and other road- and trail-based recreation. Since 1992, this type of recreation has represented approximately 48–58 percent of all activity days in California, with walking for fitness and pleasure generally the highest ranked activity, by both percentage of participants and number of days of participation.

In the Delta, there is some level of use in each of the three recreation categories: Resource-related, urban parks-related, and right-of-way/tourism-related. As one of the more unique resource attraction areas in the state, it is only logical that primary uses would be resource-related activities. These include all variety of boating, camping, nature study/bird watching, hunting, and fishing. As described above, an estimate of 6.4 million boating visitor days per year (including fishing from a boat) was completed in 2000.[83] As part of the study, projections were made that this use would grow by 1 percent a year, but with the recent recession's impact, on motor boating in particular, as well as the overall lack of investment in facilities and upgrades over the past 20 years, the 2000 count likely reflects today's usage level. None of the remaining activities has had Delta-only surveys or counts, but from review of known visitation to specific sites, data regarding permits and licenses, it is estimated that these remaining uses account for roughly 1.5 million visitor days of use annually. When combined with boating, this gives a total of approximately 8 million resource-related visitor days of use per year.

The cities bordering the Delta have taken advantage of the Delta's waterways and scenic resources by locating both resource-related facilities and standard city parks on the edges of the Delta. For instance, Sacramento's Garcia Bend Park, on the Sacramento River, combines boat launching, bank fishing, and levee-top trails with organized sports, children's play, and informal park day uses. Stockton has located its largest city park and a major recreation-related redevelopment area adjacent to Delta waterways. There are approximately 300 acres of urban park and recreation areas bordering Delta resources located in the various communities which surround the Delta. On average throughout California, urban parks receive approximately 10,000 visits per acre per year.[84] Estimated conservatively, 2 million visitor days of urban parks-related use occurs within the primary and secondary zones.

Driving for pleasure in the Delta is very popular and is a prime example of the right of way/tourism-related recreation use. This recreation category also includes bicycling, hiking, and walking. The winding roadways, interesting bridges, scenic views of waterways and agricultural areas, Legacy Communities, and historic structures all contribute to its visual appeal. The ability to buy fresh fruits and vegetables straight from the grower, visit a winery and sample their product, stop and pickup a freshly made deli sandwich or an ice cream at a 50-year-old grocery store, all deepen the Delta experience. To many, the resources are part of the charm—the

[83] DBW 2002
[84] Dangermond 1993, Table 15.2, p. 219

historical town of Locke, the wildlife preserves, or even the beautiful oak trees hanging over the roadway.

There have not been any use-participation estimates or surveys for this recreation activity in the Delta. However, the total participation in driving for pleasure in the market area can be estimated at 160 million annual participation days[85] (note that driving for pleasure is frequently combined with other recreation activities). As discussed above, the market area has a number of competing destinations including Monterey/Santa Cruz, Bay Area, Coast, Redwoods, Wine Country, Gold Country, Central Valley farmlands, and the Sierra Nevada. Assuming the Delta is able to capture 1–2 percent of that overall market, driving for pleasure and associated activities (e.g., visiting historic sites and farm stands, etc.) in the Delta generates significant visitation. Using these estimates, Right-of-way-related recreation is approximately 2 million visitor days per year.

Combining the above estimates (8 million resource-related and 2 million right-of-way-related) would result in a total of 10 million annual visits in the Delta, plus 2 million in urban parks around the edge. In the 1990s the State Department of Parks and Recreation estimated an annual use of 12 million days in the Delta. Since that time, population in the Market Area has increased; however, there have been limited investments in new facilities or upgrades to existing facilities. The constraints outlined in Sections 3.2 and 3.3 above have not been resolved, and in some cases have been only exacerbated over time (e.g., lack of dredging, water quality). Additionally, the recession of 2007-2009 has negatively affected recreation and tourism, as well as boat registrations. Absent new research, this 12 million visits per year estimate seems to be a reasonable working number until additional primary data collection is performed.

3.4.6 Market Demand-Based Delta Visitation Estimates

Visitor estimations can be tested based on estimates of demand, generated from population numbers using participation rates and frequencies. In summary, first, participation rates for various Delta activities were determined. Using these participation rates and estimates for activity days of participation from State Parks (described above) and adjusting for multiple activities in a day, demand numbers (expressed as visitor days) for the market area can be estimated. Following that, a determination of what percentage of market demand the Delta will capture versus other recreation opportunity areas available to the market area is made. These estimates result in a range of 8.2–15.2 million recreation visitor activity days per year in 2010. In the appendix, the model for demand-based participation is presented.

These recreation activities can also be broken down into the categories described above: Resource-related, urban parks-related, and right-of-way/tourism-related. The urban parks-related category was not included in these estimates, which was previously estimated to be another 2 million activity days per year. Resource-related activities result in a range of 4.5-10.7 million activity days per year, while right-of-way/tourism related activities result in a range of 1.7-2.5 million activity days per year. These ranges are similar in magnitude to those discussed above and are summarized in Table 31.

[85] 12 million population x 60 percent participation x 22 average days (taken from Table 25)

Table 31 Summary of Visitation Estimates to the Delta

Type	Estimate of Visitor Days (2010) (millions)		
Activity Type Estimates		**Estimate**	
Resource Related		8.0	
Right-of-Way Related		2.0	
Urban Parks Related		2.0	
Total		12.0	
Demand Based Estimates	**Low Estimate**	**Medium Estimate**	**High Estimate**
Resource Related	4.5	7.6	10.7
Right-of-Way Related	1.7	2.1	2.5
Urban Parks Related*	N/A	2.0	N/A
Totals	8.2	11.7	15.2

Sources: U.S. Census, State Parks 2009, The Dangermond Group, EPS

* Demand for urban parks is not estimated by the visitor market analysis.

3.5 Economic Impact/Benefits

3.5.1 Current Economic Impact Model

The economic impact of Delta recreation is assessed based on estimated visitation levels and trip-related spending. As described in Section 3.4, it is estimated that the Delta currently supports approximately 7.6 million resource-related visitor days and 2.1 million right-of-way/tourism days (market demand-based estimates). This analysis estimates that average per-day expenditures for the resource-related and right-of-way/tourism recreation activities range from about $27 to $76 (2011 dollars) depending on the activity type, of which about $13 to $34 is spent in the Delta. Based on these per-day spending levels and the estimated Delta visitation, direct spending in the Delta economy attributable to resource-related and right-of-way/tourism recreation is estimated at approximately $251 million (2011$).

This visitation-based economic impact estimate focuses on resource-related recreation, including boating, fishing, hunting, and other activities (e.g., wildlife viewing), and right-of-way/tourism activities, including hiking, biking, driving for pleasure, and cultural activities. The analysis does not account for activities at the urban fringe, including urban park recreation (e.g., team sports). Resource-related and right-of-way/tourism activities are believed to account for the majority of economic impacts of recreation occurring in the Delta.

The economic impact of the Delta is calculated by multiplying activity-specific visitor days by per-day expenditure estimates. A visitor day is defined to be a day at a recreation site by a single person doing any and all activities. While visitors may participate in multiple activities, the analysis defines a primary activity to avoid double-counting visitors. The analysis relies on the distribution of visitation by primary activity shown in Table 32.

Table 32 Estimated Resource-Related and Right-of-Way/Tourism Visitation to the Delta by Activity

Activity	Visitor Days	Percent of Total
Boating, Fishing, and Camping	6.4 Million	66%
Hunting	500,000	5%
Other Resource-Related and ROW Activities	900,000	9%
Driving for Pleasure and Tourism	1.9 Million	20%
Total Delta	9.7 Million	100%
Sources: Sacramento–San Joaquin Delta Boating Needs Assessment (2000); The Dangermond Group *Note: Activity categories reflect similarities in economic spending patterns.*		

The analysis relies on average expenditures reported by boaters (including anglers), hunters, and recreationists participating in wildlife-associated activities to estimate spending in the Delta. Specifically, the analysis uses spending data from the Sacramento–San Joaquin Delta Recreation Survey[86] and the National Survey of Fishing, Hunting, and Wildlife-Associated Recreation.[87] The analysis considers expenditures outside and inside the Delta, based on boating and fishing expenditure patterns reported by the Sacramento–San Joaquin Delta Recreation Survey. Daily spending estimates from the Sacramento–San Joaquin Delta Recreation Survey are updated to reflect real spending increases observed by the National Survey of Fishing, Hunting, and Wildlife-Associated Recreation between 1996 and 2006. The analysis assumes that resource-related and some right-of way activities (e.g., biking and hiking) spending is generally consistent with expenditure patterns reported for wildlife viewing trips in the National Survey of Fishing, Hunting, and Wildlife-Associated Recreation. Driving-for-pleasure spending is also based on National Survey of Fishing, Hunting, and Wildlife-Associated Recreation, though these data are adjusted to reflect lower levels of spending on lodging and recreational activities for driving-for-pleasure visits. All spending estimates are inflated to 2011 dollars using the Bureau of Labor Statistics Consumer Price Index (CPI).

[86] State Parks 1997
[87] USFWS 1996 and USFWS 2006

Table 33 Estimated Per-Day Per Visitor Expenditure by Activity (2011$)

	Expenditure Outside Delta	Expenditure Inside Delta	Total Expenditure
Boating, Fishing, and Camping			
Accommodation	$2.76	$5.25	$8.00
Food	$5.25	$8.34	$13.58
Supplies	$8.76	$11.34	$20.10
Other	$3.99	$5.46	$9.45
Total	$20.75	$30.38	$51.13
Hunting			
Accommodation	$12.30	$9.06	$21.36
Food	$3.88	$3.92	$7.80
Supplies	$20.21	$14.24	$34.45
Other	$5.70	$6.93	$12.63
Total	$42.08	$34.15	$76.24
Other Resource-Related and ROW Activities			
Accommodation	$6.31	$4.65	$10.97
Food	$6.38	$6.45	$12.83
Supplies	$6.04	$4.25	$10.29
Other	$1.45	$1.77	$3.22
Other	$20.19	$17.12	$37.31
Driving for Pleasure and Tourism			
Accommodation	$1.58	$1.16	$2.74
Food	$6.38	$6.45	$12.83
Supplies	$6.04	$4.25	$10.29
Other	$0.73	$0.88	$1.61
Total	$14.72	$12.75	$27.47

Sources: Sacramento–San Joaquin Delta Recreation Survey (1997); National Survey of Fishing, Hunting, and Wildlife-Associated Recreation (1996 and 2006)
Note that "Accommodation" includes spending at campsites.

The analysis estimates direct economic impacts from resource-related and right-of-way/tourism recreation by multiplying activity-specific visitor days by the per-day expenditure estimates. Current direct impacts are estimated at $251 million inside the Delta (2011 dollars), as shown in Table 34.

Table 34 Estimated Direct Delta Recreation Trip Spending Impacts by Activity (2011$)

	Expenditure Inside Delta
Boating, Fishing and Camping	
Accommodation	$33,572,000
Food	$53,354,000
Supplies	$72,571,000
Other	$34,929,000
Total	$194,426,000
Hunting	
Accommodation	$4,822, 000
Food	$2,087, 000
Supplies	$7,579, 000
Other	$3,690, 000
Total	$18,177, 000
Other Resource-Related and ROW Activities	
Accommodation	$3,110, 000
Food	$4,312, 000
Supplies	$2,843, 000
Other	$1,183, 000
Total	$11,449, 000
Driving for Pleasure and Tourism	
Accommodation	$2,456, 000
Food	$13,621, 000
Supplies	$8,980, 000
Other	$1,868, 000
Total	$26,925, 000
Resource-Related and ROW/Tourism Total	
Accommodation	$43,960, 000
Food	$73,374, 000
Supplies	$91,973, 000
Other	$41,670, 000
Total	$250,978, 000

While visitor spending occurs in a wide variety of categories, the bulk of visitor spending is likely to occur at recreation facilities, overnight accommodations, restaurants and bars, food and beverage stores, gas stations, and convenience stores. Comparing the estimated expenditure levels with total Delta revenue estimates for these industries shows that Delta recreation and tourism generates a large share of sales for these industries. For example, our estimates show that Delta recreation accounts for 90 percent of recreation sector spending, 58 percent of accommodation spending, 16 percent of sporting goods retail spending (including book and hobby stores), 12 percent of gas station sales, and 7 percent of restaurant and bar spending in the legal Delta.[88]

Table 35 maps the $251 million in spending into more specific expenditure categories that are used for the economic impact analysis with IMPLAN. Comparing these expenditure levels with total Delta area revenue estimates for these industries shows that Delta recreation and tourism generates a very large share of sales for these industries. For example, our estimates show that Delta recreation accounts for 92 percent of other accommodation spending in the legal Delta region, 47 percent of hotel and motel spending, and 7 percent of restaurant and bar spending. As an additional reasonableness check, a comparison was made of these expenditure levels

[88] Industry and retail data from IMPLAN and ESRI, respectively.

against the establishment data for the legal Delta from the NETS database. The level of spending was 42 percent of other amusement and recreation industry revenues in the legal Delta, a category that includes marinas and golf courses, 71 percent of total accommodation industry revenues, and 19 percent of food service and drinking places.

Table 35 Estimated Direct Delta Recreation Trip Spending by IMPLAN sectors

Hotels and motels	$ 26,699,278
Other accommodations (i.e., campgrounds)	$ 17,799,518
Food services and drinking places	$ 63,364,613
Retail - Food and beverage stores	$ 28,153,123
Retail - Gasoline	$ 65,485,709
Retail - Sporting goods, hobby, book, and music	$ 7,969,036
Other amusement and recreation industries (i.e., marinas)	$ 34,806,041
Retail - General merchandise	$ 6,862,926

Table 36 summarizes the economic impact of recreation on the five-county Delta region as modeled with IMPLAN. Delta recreation and tourism supports about 2,700 jobs in the region including nearly 1,100 in restaurants and bars, 268 in hotels and motels, and 263 jobs at marinas. These jobs provide about $90 million in labor income, and a total of $152 million in value added to the regional economy. Based on a descriptive analysis of job location in the Delta in earlier chapters, it appears that the majority of these jobs are located in the Secondary Zone.

Table 36 Economic Impact of Delta Recreation and Tourism on Five Delta Counties

Impact Type	Employment	Labor Income	Value Added	Output
Direct Effect	1,953.5	$52,553,680	$ 86,648,100	$166,731,376
Indirect Effect	395.2	$20,301,232	$ 34,425,490	$ 64,612,876
Induced Effect	367.2	$16,665,778	$ 30,962,200	$ 52,752,976
Total Effect	2,715.9	$89,520,688	$152,035,800	$284,097,216

Table 37 shows the statewide impacts of Delta recreation and tourism. For these impacts, we estimate an additional $200 million in recreation-related spending outside the Delta for supplies and travel. Statewide, Delta recreation and tourism supported nearly 5,000 jobs and $325 million in value added.

Table 37 Economic Impact of Delta Recreation and Tourism on California

Impact Type	Employment	Labor Income	Value Added	Output
Direct Effect	3,143.6	$ 93,460,048	$154,608,500	$289,795,104
Indirect Effect	859.6	$ 50,102,816	$ 85,391,670	$161,296,176
Induced Effect	932.4	$ 46,813,804	$ 84,487,100	$148,968,112
Total Effect	4,935.6	$190,376,672	$324,487,300	$600,059,392

3.5.2 The Economic Impact of Recreational Boating and Fishing in the Delta

As a follow-up to the 1997 State Parks survey, Goldman et al. produced a report, The Economic Impact of Recreational Boating and Fishing in the Delta.[89] Using data from the 1997 survey on numbers of anglers and registered boat owners and their reported expenditures, Goldman et al,

[89] Goldman et al., 1998

estimated the expenditures of registered boaters at $247 million in the Delta, generating $445 million in total output, $183 million in income, $279 million in value added, and 8,058 jobs in the overall Delta region. For licensed anglers, expenditures totaled $186 million in the Delta, generating $336 million in total output, $138 million in income, $209 million in value added, and 6,152 jobs in the overall Delta region. The authors note that the impacts from boating and fishing can not be aggregated, as many boaters fished, and many anglers boated. The authors also note that these numbers do not include the many other recreationists who participate in Delta-based activities, such as driving for pleasure, non-registered boaters (i.e., kayaks and canoes), non-licensed anglers, hunters who do not boat, etc., and so is not a complete picture of the economic impacts of Delta recreation.

While the estimates of total recreation spending in the Delta are similar between the ESP and the Goldman study, at about $250 million (Goldman's boating estimate), there are two primary reasons why the Goldman study estimates significantly higher total regional employment and output attributable to recreation in the Delta. These factors are (1) the change over time in output per worker and (2) the method of accounting for direct output. Goldman's economic data is from 1994 when each nominal dollar of spending supported more employment than it does today. Specifically, the Goldman study indicates that total output of roughly $55,000 from Delta boating activities supports one job in the regional economy, while in today's economy the ESP finds that it takes approximately $105,000 in boating-related output to support one job. Furthermore, the Goldman study appears to count the full value of boater spending as production output value, whereas the ESP measures output in retail industries using the retail margin (i.e., the addition to the price of a product when the product is sold through a retailer). In the ESP, the $251 million estimate of in-Delta spending translates to approximately $167 million in direct output, whereas the Goldman study seems to treat the full value of sales revenue (e.g., $247 million of in-Delta boater spending) as direct output. Accounting for this difference, the Goldman study and the ESP reveal a very similar economic output multiplier within the regional economy.

3.6 Trends

The current status in Delta recreation shows a place of diverse recreation experiences, with approximately 12 million annual visitors, having an economic impact on the region of over $250 million. Yet, this recreation mecca is also suffering from economic conditions, physical and operational constraints, pressures on water supply, regulations that restrict development, and other internal and external issues. These trends must be taken into account when projecting the Delta's recreation potential over the next 50 years, as must the Delta's recreation history.

One way of trying to estimate recreation use over the next 50 years is to look back in time. Fifty years ago (1960s), people engaged in virtually all the recreation activities they now enjoy. User survey data exists going back a little over 50 years. There are approximately 35 different outdoor recreation activities identified by State Parks with data collected nearly every five years over the 50-year period. Most of the activities track their growth with population, but some are decreasing in percentage of the total, while others have increased.

As discussed previously, the one factor that is relatively constant is the percentage breakdown between the three broad clusters of recreation activities: Resource-related, urban parks-related, and right-of-way/tourism-related., i.e., 20 percent (16-23 percent) of activities take place in urban developed parks and golf courses; 50 percent (48-58 percent) are right-of-way related, including jogging, walking, bicycling, and driving for pleasure; and the remaining 30 percent (25-30 percent) occur in natural and historic resource related areas including state and national parks, forest service lands, nature areas, reservoirs, and rivers. These percentages have remained relatively constant over time, regardless of demographic changes. Another rather constant factor to consider is that approximately 70-80 percent of the total recreation use is simple, close to home, and with very little expenditure required for special equipment.

Therefore, it is anticipated that the outdoor recreation uses we find today will still exist, that the predominance of the activities will be simple, close to home, and require little expenditures, and that around 20 percent of the use will be developed urban park-related, 50 percent right-of-way-related, and 30 percent resource-related.

The Delta may likely become even more important for these types of uses because the populations that encircle it are expanding. Elsewhere, close-by outdoor recreation opportunities are rapidly disappearing. But the combination of land-use protections, flood vulnerability, and rich agriculture land provide the likelihood that California's Delta will still remain relatively unchanged in coming years.

In the Delta, the present uses are highly related to the availability and condition of private facilities. Most of the boating and fishing activities rely upon private marinas, even though the activities occur on public waterways. Most of the hunting in the Delta also occurs at private hunting clubs. Most Delta-as-a-Place destinations are related to wineries, farm stands, and commercial establishments in the Legacy Communities.

Developed local and state resource-related recreation areas in the Delta are quite limited, when compared to other areas in the state. Most public lands are nature and wildlife reserves, supporting nature study and bird-watching and, in some cases, hunting, but their public access facilities are either secondary to their mission or still primarily in the planning stages. They appear to have capacity to accommodate increased use over time. Some urban parks have been developed along the edges of the Delta, primarily in Stockton.

Another way to look at trends is through latent (i.e., unmet) demand revealed by survey data. State Parks survey data reports on latent demand by activity category.[90] The following activities were found by State Parks to be the top five activities that adults would like to participate in more often.

1. Walking for fitness or pleasure
2. Camping in developed sites
3. Bicycling on paved surfaces
4. Day hiking on trails
5. Picnicking in picnic areas

All of these activities take place in the Delta and represent an opportunity for growing visitation, if facilities were available and attractive.

USFWS reported on trends since 1996 in fishing, hunting, and wildlife viewing. Overall in California, fishing has declined 36 percent since 1996, while hunting has declined 45 percent (though it has been flat since 2001).[91] Conversely, away-from-home wildlife watching is up 23 percent since 1996. These data seem to represent a trend away from consumptive recreation (i.e., hunting and fishing) and towards non-consumptive wildlife recreation (i.e., bird watching

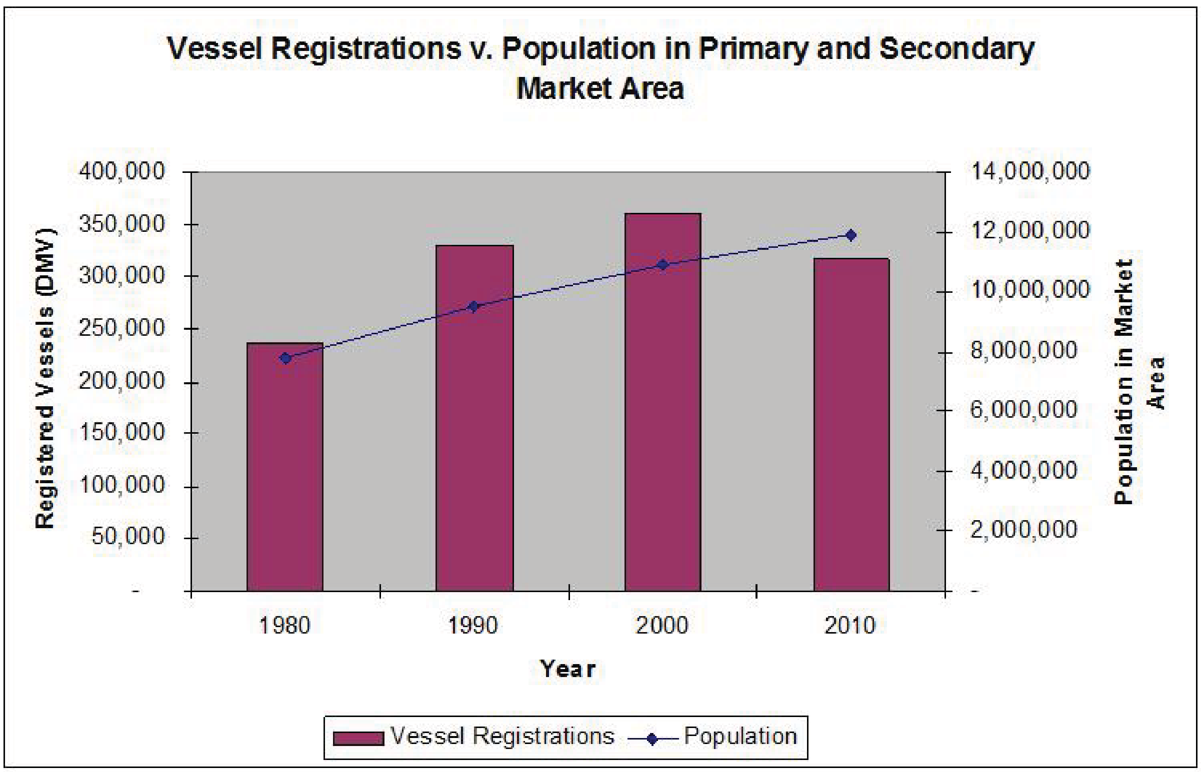
[90] State Parks 2009, p. 36
[91] USFWS 2006

and nature photography). State Parks figures also support these trends. Recreational programming and facilities in the Delta should respond to this trend.

Section 3.2.4.1 above highlighted current (2010) boat registration numbers. Vessel registrations are down substantially since 2000 in both the State and the Primary and Secondary Market Area. In 2000, vessel registrations were at 902,447 statewide, and 359,541 in the Market Area, compared to 2010 numbers of 810,008 statewide and 317,571 in the Market Area. These numbers represent a decrease of 11 percent statewide and 13 percent in the Market Area. The 2010 number, however, is likely affected by the ongoing “great recession” and it cannot yet be determined if it represents a new trend. Figure 29 below shows boat registrations versus population over the past 40 years in the Market Area.

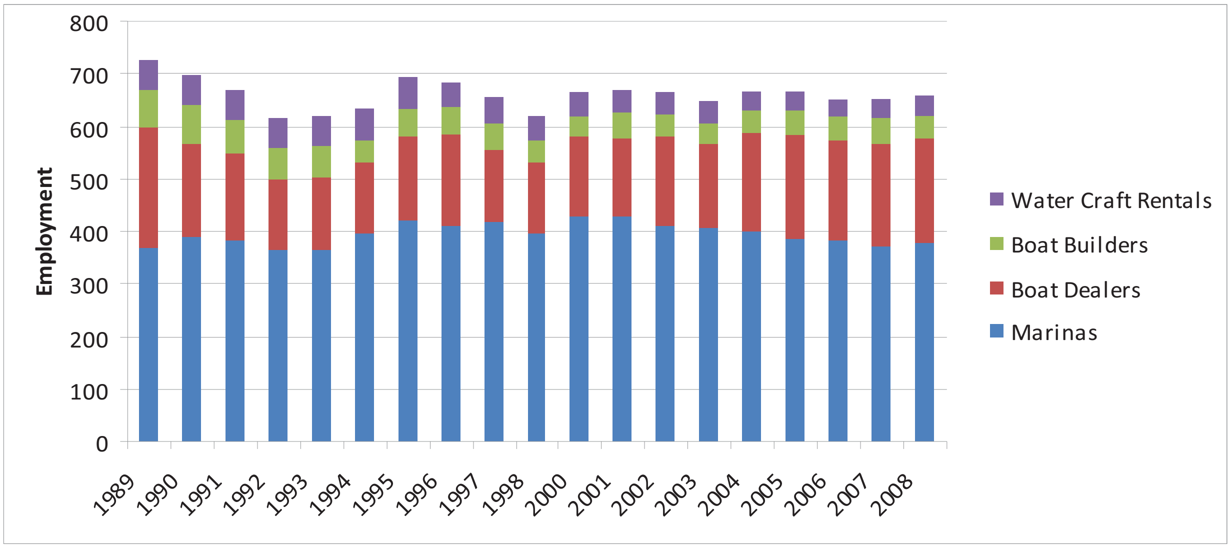
While boat registrations were increasing at a faster pace than population growth through the 1980s, they have increased at a slower pace than population growth since then, and as mentioned above, have decreased overall since 2000. As boating is the dominant recreational activity in the Delta, these trends indicate that motorized and sail boating may not keep pace with population growth over the next 50 years.

Figure 29 Vessel Registration v. Population in Primary and Secondary Market Area, 1980-2010



Available business enterprise-based data also reveal stagnation in the Delta’s recreation economy. Over the past 20 years, employment in marina enterprises has been relatively flat. In 1990, the database counts 95 marina-related establishments, 90 in 2000, and 93 in 2008. Likewise, employment by water-based recreation-related establishments has remained relatively constant over the past 20 years, as demonstrated by Figure 30.

Figure 30 Employment in Legal Delta for Water-Based Recreation Sectors, 1989-2008



Source: NETS

There are several other external or societal trends that could affect the present recreation use and demand over the next 50 years.

- Physical changes to the Delta related to habitat restoration and water deliveries, which will likely result in increased habitat acres and water surfaces with a potential decline in agriculture acreage
- Increasing population and development growth surrounding the Delta, forming a larger urban ring around significant portions, with probable exceptions for valuable, healthy near-urban ecosystems and productive agricultural lands
- Increasing population seeking out various forms of outdoor resource-related recreation, increasing the significance of the Delta as a contrast to local urbanization
- An increasing interest in maintaining close-to-urban agriculture to supply fresh fruits and vegetables
- Increasing concerns over “nature deficit disorder” among young people and greater interest in youth access to meaningful natural experiences
- Health concerns, such as obesity, and the need for more exercise activities
- Continued decline and stagnation of existing facilities without new capital investments

3.7 Key Findings

- The Sacramento-San Joaquin Delta is an area where a diversity of recreation experiences is very evident; from the thrill of a speeding personal watercraft to the relaxation of canoeing or boat cruising through a winding tree-covered channel, from hunting game birds to the quiet observation of a flock of Sand Hill cranes, from studying the early history of Chinese workers to the tasting of local wines.
- While a percentage of visitors to the Delta come from elsewhere, the majority of visitors are from Northern California. These visitors represent the focal market for Delta recreation growth opportunities in the future, and their places of origin define the market area for this study. The total Market Area had a population estimate of approximately 11.9 million in 2010, with projections of 17.6 million by 2050.
- Based on demand models, recreation visitation for 2010 is estimated to be approximately 8 million *resource-related* (e.g., boating and, fishing) visitor days of use per year, 2 million *urban parks-related* (e.g., golf, picnic, and turf sports), and 2 million *right-of-way-related*

(e.g., bicycling and driving for pleasure) recreation visitors/year. The total number of activity days is conservatively estimated at approximately 12 million/year.

- Employment in recreation-related economic sectors within the Primary Zone has been relatively flat over the past 20 years.
- The principal changes and trends that could affect the present recreation use and demand over the next 50-90 years are: physical changes to the Delta, increasing population and development growth, increasing agri-tourism, and the likely desire for closer to home recreation.
- The current direct spending in the Delta region from *resource-related* and *right-of-way/tourism-related* trips is estimated at roughly $251 million inside the Delta (in 2011 dollars). Additional economic impacts associated with urban recreation are not quantified, but are likely significant.
- Delta recreation and tourism supports about 2,700 jobs in the five Delta counties. These jobs provide about $90 million in labor income, and a total of $152 million in value added to the regional economy.
- Delta recreation and tourism supports nearly 5,000 jobs across all of California, and contributes about $325 million in value added.

4 Outcomes and Strategies under Baseline Conditions

The prior section discussed the current status of recreation in the Delta, including existing facilities, and estimates for existing visitation and economic impacts. There was also a short discussion on current trends. In this section, a plan is developed for a strategy for economic sustainability for Delta recreation and tourism, under baseline conditions.

A recreation plan generally brings together four main topic areas: opportunities and constraints, principles and goals, physical strategies, and operational strategies. This section will follow that standard while taking into account assumptions for baseline conditions described in Chapter 6.

4.1 Opportunities and Constraints

There are many current and future potential opportunities and constraints to recreation potential in the Delta. Several existing opportunities and constraints, both physical and operational, were described in Sections 3.2 and 3.3 of this chapter. Those that would have the most significant impacts on future planning scenarios are expanded below.

4.1.1 Constraints

4.1.1.1 Limited Access and Visibility

The Delta is a recreation landscape of two faces; one seen from the water and the other experienced largely from a car or in one of the Legacy Communities. For all its hundreds of miles of waterways, the waters of the Delta can be only accessed in a relatively few places. Dotted with private marinas and few public parks, boats can only reach Delta waters from these boat slips and ramps, as well as from private docks and remote put-in spots outside the Delta. Transient tie-ups or places to temporarily tie up a boat are also limited. Similarly, there are relatively few landside recreation facilities that offer camping or picnicking, and overnight hospitality options are relatively few.

The Delta landscape on the landside is equally limited to visitors. With few communities, parks, trails and public destinations, the vast land area for the most part is accessible only through the windshield.

4.1.1.2 No Distinct Delta Identity

For the same reason the Delta lacks a distinct identity as place, it lacks both an operational and marketing identity. Unlike a known brand like “Monterey,” “Delta” lacks brand recognition and any significant sense of critical mass in the minds of visitors. In addition, it lacks a strong identifying focal point area, like Fisherman’s Wharf and the Monterey Bay Aquarium. For all its beauty, allure, and recreational diversity, the Delta functions as a largely underutilized destination, unknown to many in the larger Bay Area and the state, and not easily discoverable to those who do not already know and use the area.

4.1.1.3 Two Contrasting Physical Environments

The Delta comprises two contrasting physical environments that bump against one another, sometimes harmoniously and sometimes in conflict. Many agricultural islands, hidden from the waterways by levees, lie significantly below river level. This physical, visual, and land-use juxtaposition makes the edge between the two environments problematic and limits access to waterways.

Boating use occurs on public waterways that abut, for the most part, privately-owned agricultural or residential property. It is the natural inclination of boaters to occasionally beach their boats and access the shoreline, which can result in trespass and potential damage to private property. Boat wakes can damage levees. Levees, subject to erosion, are often lined with armor, which discourages landing by boaters and precludes shoreline recreation use other than incidental bank fishing by landside fishermen. The resulting environment allows for boat passage but virtually no shoreline recreation use in these areas, a significant deterrent to expanded boating use. Aesthetic values of unvegetated riprap levees are low, further diminishing their appeal.

4.1.1.4 Private Marina Limitations

Most boat access to Delta waterways is provided through private marinas and boat launch ramps; state and local public launch facilities are provided to a limited degree. There are relatively few opportunities for overnight stays for boaters without self-contained facilities. Over the years, the private marina market has adjusted to provide for the demand for boat storage slip space, which is the primary revenue source for marina operators. Launch ramps and parking space for trailered boats is available in limited supply at marinas as boat launch revenues generally are not a significant revenue source and land for parking is limited above the levees.

Marinas face siltation of their boat basins, and costs and regulatory hurdles to maintenance are significant. Many marinas and resorts are aging and suffer from deferred maintenance, diminishing their appeal to new users.

A further limiting factor to increased use by visitors trailering boats to the Delta is its “hidden” quality. Boat put-in locations are often not easily seen and must be sought out by the first-time visitor. Many facilities are located in out-of-the-way locations. Further, given the narrow spaces many marinas occupy, with parking and roadways built atop narrow levees, launching and parking maneuvers can be challenging, even for experienced operators. Boating use has tended to be relatively local in nature and therefore primarily a day-use activity, which limits economic activity generated by recreation.

4.1.1.5 Other Facility Limitations

In addition to private marinas that only offer slip rentals, launching, and related services, some private resorts offer camping and day-use facilities. Resorts of this kind are limited and revenue potentials run at a tight margin. There are some state and local parks that also offer similar facilities, however, such landside recreation amenities are relatively rare in the Delta.

Traditionally, in the Delta, recreation improvements have been largely provided by the private sector and public investment in land and facilities has been small. Declining public recreation budgets have contributed to declining maintenance and facility quality and no schedule for expanded development. State and local agencies have developed multiple plans for expanding Delta recreation that have remained unfunded for many years. The most recent plan by State Parks, *Recreation Proposal for the Sacramento–San Joaquin Delta and Suisun Marsh*, states that no funding is available for implementation and the largest State Park in the Delta, Brannon Island State Recreation Area, is currently on the proposed closure list.

4.1.1.6 Waterway Concerns

An additional constraint to expanded boating use in the Delta is its geography. By its nature, a labyrinth of waterways that lack obvious navigational landmarks, the unfamiliar boater can easily become lost. Although increasing use of GPS devices reduces this risk, many inexperienced boaters continue to be reluctant to tackle Delta navigation.

Similarly, Delta waterways can be unpredictable in depth and contain unseen underwater hazards that can discourage the uninitiated boater. Snags, sandbars, and submerged levees are common hazards that can catch the casual boater.

Water quality is also an issue to some boaters and shoreline users in the Delta. With limited clarity and concern over water quality, some are deterred from engaging in water contact in the Delta. Velocity of currents further makes swimming more hazardous in some locations. Many boat owners avoid saline water, and salt water intrusion could render increasing areas of the Delta off limits to these boaters. Invasive aquatic plants, including water hyacinth and *Egeria densa*, further reduce access and appeal to boaters and fishermen by impeding navigation and damaging boat motors.

4.1.1.7 Regulatory Environment

While most local jurisdictions, including counties and cities, have policies that encourage recreation in the Delta, they also have regulations which preclude new development or services. So, while protecting the atmosphere of the Delta-as-a-Place, these same policies also inhibit economic growth and sustainability. Additionally, several state and federal agencies have regulatory authority over changes to Delta facilities. For instance, permits for a new marina or even a marina upgrade may require input from the local county, the State Department of Boating and Waterways, Delta Protection Commission, State Lands Commission, Reclamation Board, State Department of Fish and Game, Regional Water Quality Control Board, U.S. Army Corps of Engineers, U.S. Fish and Wildlife Service, and National Marine Fisheries Service. These many layers of regulations are, at best, costly, time consuming, and confusing, and, at worst, completely prohibitive to new recreation developments or enhancements.

Opportunities: In spite of the many constraints facing future Delta recreation economic sustainability, current market area population growth trends and the size and variety of physical amenities can still provide many future opportunities.

4.1.1.8 Increasing Demand

By 2050, population growth in the counties surrounding the Delta is projected to grow by 50–60 percent. As population and gasoline prices increase, there will be a growing focus on recreation opportunities close to population centers. Increasingly, past experience would indicate, the Delta, where will become a primary source of open space and recreation activity for the greater Northern California region.

If so, boating access and landside recreation opportunities today will be inadequate to accommodate this growing demand. Similarly, increased agri-tourism will create demand for expanded overnight visits to Legacy Communities and the growing wine region. Recreation and agri-tourism will likely grow together, fueling the interest in the Delta and reinforcing its emerging identity as "place". A synergy between agriculture and recreation will create new opportunities for visitation and economic activity in the Delta.

By attracting visitors to Legacy Communities and expanding recreation access to waterways and landside recreation improvements, potential negative economic impacts on agriculture from increased tourism and recreation can be minimized by increasing and focusing recreation uses and activities.

4.1.1.9 Physical Capacity of Delta Waterways

Current levels of boating and fishing fall far short of the physical capacity of the Delta waterways for recreation. Within the great size and diversity of Delta waterways, there is significant capacity for additional boating use in the future. Population growth will expand the demand for all forms of recreation in the Delta. These uses can be accommodated through expanded points of access via land- and water-based facilities. These facilities in many cases would require conversion of land from other uses.

4.1.1.10 Public Lands

Nearly all public lands that have been acquired in recent years within the Delta have been set aside as wildlife habitat but provide little or no public recreation use or access. There may be significant opportunities to include public use that would be compatible with habitat-management objectives. Renewed funding for agency recreation plans, such as State Parks' *Recreation Proposal for the Sacramento-San Joaquin Delta and Suisun Marsh*, could provide a significant expansion of access and facilities that could boost recreation use.

4.1.1.11 Delta-as-a-Place

The Delta must be a better-defined destination for visitors. Increased programming, special events, festivals, and marketing have the potential to significantly increase visitation and recreation use Delta-wide. Linking the vitality and tourist appeal within Legacy Communities would boost overall Delta recreation and attract a new segment of visitors. Joint marketing of events in these communities tied to farm trail, wine trail, and boat trail tourism would be a further means of increasing visitation and economic activity. These steps, adjunct to traditional Delta recreation enhancements, would boost the identity of the Delta as a destination with multiple attractions and enhance Delta branding and recognition.

The Delta-as-a-Place identity would also be enhanced by efforts to identify and establish gateways and edges to the Delta that reinforce its unique landscape character, particularly along the primary east-west highway corridors.

4.1.1.12 Market Area Development

Projected population growth within communities on the edge of the Delta may likely create additional demand for recreation offerings. Urban water front recreation improvements such as those built by the City of Stockton over the last few years will provide capacity for new visitors to participate in leisure activities. This trend could continue if communities, such as Tracy and Lathrop, orient planned development towards the Delta, interconnecting recreation corridors on the periphery of the Delta, and contributing to buffer zones between urbanized areas and the Delta to provide additional recreation opportunities.

Development of Delta-edge and cross-Delta trails, connection of open space areas, and capturing land and water views within the Delta can further add to the growing fabric of Delta recreation and access and the capacity to accommodate additional visitors.

4.1.1.13 Future Prominence

As growth in the region and the state continues over the coming decades, the Delta can emerge as a recreation resource of increasing value and appeal and its prominence as a destination will expand accordingly. Increasing water-oriented recreation demand and the associated demand for landside recreation activities can combine with the growing appeal of agri-tourism and locally-grown food and wine to reinforce the identity of the Delta as a unique and desirable recreation destination for the northern California region.

4.2 Principals and Goals

Principles and goals have been established to guide development of planning scenarios for future Delta recreation. These principles and goals were developed to minimize current constraints and to take advantage of current and future opportunities. Plans were developed with the following guidelines at the forefront.

- Avoid developing recreation facilities within high flood risk areas or areas inaccessible during emergency flood events.
- Avoid conflicts with vital habitat resources.
- Respect and protect agriculture areas. Avoid locating recreation sites in areas that would create conflicts with agriculture and instead site, when possible, in more compatible areas, such as around the edges of the Delta, in combination with Legacy Communities, and by expanding existing areas.
- Respect and protect hunting activities by avoiding spatial and/or timing conflicts with other activities.
- Create positive park, open space, and trail edges that buffer the Delta from encroaching urban and suburban areas.
- Encourage both commercial and public recreation facilities—including marinas, food service, overnight accommodations, and standard community park developments—within or on the edge of Legacy Communities and existing recreation areas.
- Develop appropriate visitor-serving access facilities at wildlife areas providing nature study, bird-watching, and environmental education. Include interpretive signage to educate the public about the natural resources values of the Delta and their need for protection.
- Recognize private enterprise’s primary role in providing recreation facilities and encourage and facilitate appropriate expansion to keep up with increasing populations.
- Support programs to assist existing private recreation providers, such as identifying or providing loan funds, coordinating marina dredging and permitting, and helping them respond to sea level changes.

- Recognize the multiplicity of public agencies and non-profit entities which provide recreation in the Delta and encourage coordination in planning for, and provision of, recreation opportunities.
- Utilize State Parks Base Camp, Gateway, and Adventure concepts, as described in the report, Recreation Proposal for the Sacramento–San Joaquin Delta and Suisun Marsh, which encourages the concentration of new facilities within and near existing recreation areas while developing and enhancing the attractiveness of points of interest in appropriate locations throughout the Delta.[92]
- Promote the creation of recreation destinations as focal points of the Delta. Such multi-interest complexes should each highlight Delta values by incorporating one or more Legacy Communities, marina resorts, public and private recreation base camp areas, natural wildlife areas, and trails. The complexes should be based upon existing community values and highlight existing Delta and community resources.
- Encourage the creation of settings for private enterprise development through the development of ancillary public facilities such as trails, event venues, community docks, etc.
- Advocate for overnight extended stay within or adjacent to the Delta through program offerings, multiple points of interest, and desired accommodations.
- Increase the public's awareness of the Delta as a desirable recreation destination through better regional coordination, advertising and signage, marketing, and promotional-scale events.
- Identify and develop appropriate opportunities for small boat-in day-use areas, as well as larger destinations akin to Delta Meadows for boaters. Such areas should provide basic facilities for boaters, such as docks, tie-ups, restrooms, as well as opportunities to participate in many different forms of recreation.
- Develop appropriate locations throughout the Delta for a network of hard-surface non-motorized, multi-use trails, as well as boat trails for both motorized and non-motorized craft, including completing planning and implementation of the Great Delta Trail,[93] and trails recommendations from State Parks.[94]
- Ensure appropriate and coordinated response to operational issues including exotic aquatic vegetation control, boater safety enforcement, waterway maintenance, abandoned and derelict boat removal, boating hazard control, etc.
- Provide additional on-shore access facilities for shore fishing and boat launching.

4.3 Recreation Enhancement Strategy

The future growth of recreation in the Delta is proposed to be based upon the principles and goals previously discussed, and a recommended recreation enhancement strategy consists of the following five location-based concepts (See Figure 31).

1. Delta waterways
2. Dispersed, small points of interest and activity areas
3. Focal point destinations (activity bases)
4. Natural habitat areas
5. Delta-urban edges (the edges of existing and emerging urban areas that surround the Delta)

Each concept is described in greater detail below.

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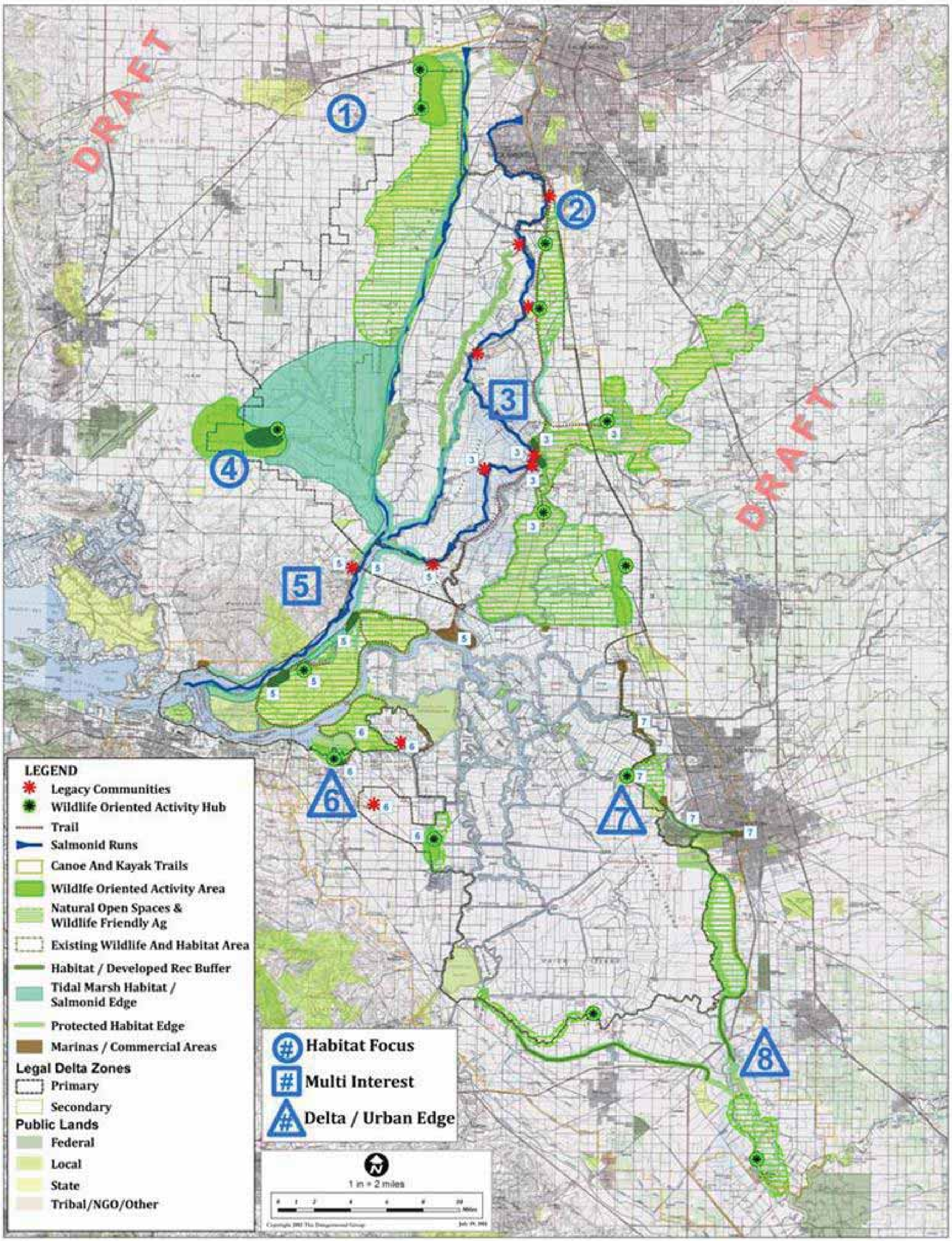
[92] State Parks 2011.
[93] DPC 2010
[94] State Parks 2011

Figure 31 Recreation Enhancement Strategy Plan



4.3.1 Delta Waterways

The primary location for recreation in the Delta is, of course, the waterways. These waterways are diverse—narrow, wide, tree-lined or channelized, windy or quiet. Boaters have, over time, selected areas for their specialty activities, such as windsurfing, waterskiing, cruising, paddling, etc. Specialty needs are associated with most of these diverse activities.

The Delta Protection Commission's 2006 *Aquatic Recreation Component of the Delta Recreation Strategy Plan* is still very applicable. It recognized the existing use areas, access points, and marinas, and provided recommendations regarding their enhancement, refurbishment, and expansion. In addition, the report recommended three priority new enhancements.

It recommends that non-motorized boating trails be established in six different locations on waterways where habitat values are primary and where such use would not conflict with power-boating activities. A second recommendation is that major boat-to destinations, similar to Delta Meadows, be established in other parts of the Delta. Further study is required to determine where these might be appropriate, but four possible areas were provided. The third recommendation was that smaller boat-in day-use areas with adequate facilities and transient tie-ups be established in appropriate locations throughout the Delta. Suggested elements and features for these areas, as well as location criteria, are provided within the report, but no specific locations are identified.

As described in the prior opportunities section, waterways have sufficient capacity to accommodate greatly increased use. The recommendations, therefore, anticipate future boating demands and changing use patterns.

4.3.2 Dispersed Points of Interest and Activity Areas

The Delta's diverse points of interest and activity areas are dispersed throughout its vast landscape. These features grant the Delta a distinctive character, especially in contrast with the surrounding urban and even rural agriculture landscapes. Overall, this aspect has come to be referred to as Delta-as-a-Place. These diverse points of interest—the small Legacy Communities, the loose network of 95 marinas scattered throughout the area, the farm stands and wineries, winding waterways, and intriguing riparian landscape—underscore the need to protect, enhance, and expand the elements that give the Delta its charm and sense of place. The sheer number and diversity of things to see and do is a valuable feature.

The expansion, over time, of additional areas will be accomplished primarily through private enterprise responding to opportunities such as farm markets, wineries, art galleries, restaurants, etc. On the public side, the Department of Water Resources[95] identified, in a past study, approximately 40 small day-use, launching, and fishing access locations that were economically viable, but which were never developed. State Parks has identified park and facilities expansions. Federal, State, and non-profit wildlife entities have planned facilities for increasing and managing public access and use.

Policies should be developed to encourage private development of additional appropriate facilities in non-conflicting locations and funding needs to be identified to accomplish public agency-planned improvements.

[95] DWR 1981

4.3.3 Focal Point Destinations

An important way to expand recreational capacity and draw new visitors to the Delta is to create destination complexes. By concentrating multiple recreation opportunities in one location, these complexes would provide focal points to visitors, particularly new visitors, and also present opportunities for businesses to develop economically viable operations.

Three locations have been identified that already have complexes of natural areas, parks, Legacy Communities, marinas, historic features, and trail potentials. They are: (1) Walnut Grove/Locke/Cosumnes River Preserve, (2) Brannan Island/Rio Vista/Isleton, and (3) Bethel Island/Jersey Island/Big Break. In addition, an emerging complex along the edges of Stockton also has the potential to be developed into a focal point destination.

The first focal point destination is proposed to include the Legacy Communities of Locke, Walnut Grove, Ryde, Cortland, and Hood, as well as Delta Meadows, the Cosumnes River Preserve, and Staten Island. Additional public facilities should include day-use and camping facilities at Delta Meadows, events venues, further improvements/restorations at Locke, and wildlife viewing/nature study opportunities. A network of water and land trails would knit together the complex and give it a sense of cohesion. The proposed historic railway connection between Old Sacramento and Hood could foster the growth of critical mass at this complex, making it more attractive for investment. Chapter 13 discusses some strategies for the Legacy Communities, but additional features and activities could be evaluated to assist in creating viable settings for private enterprise operations.

The Brannan Island/Rio Vista focal point destination complex is proposed to include Isleton, the emerging Delta Discovery Center and Farmer's Market, and the marina complex around the junction of the San Joaquin and Old Mokelumne Rivers. The proposed habitat areas on Twitchell and Sherman Islands, the Sacramento County Regional Park on Sherman Island, and Brannan Island State Recreation Area could be knit together with the communities and marinas with a network of trails. Development of additional features to create settings for private enterprise should also be evaluated for this proposed destination complex.

The Bethel Island focal point would include its marina and existing businesses, Big Break Regional Park, and the natural-lands conversion of Jersey Island. As with the other proposed complexes, these areas could be tied together and enhanced with trails.

The proposed focal point along Stockton's edge has a different character and does not include a Legacy Community or a major natural landscape feature. The planning and emerging development for the area, however, create a Delta-related focal point area because the recent designation of the westerly portion of Wright-Elmwood Tract as open space provides the opportunity for additional park, trail, and habitat restoration improvements.

4.3.4 Natural Habitat Areas

The fourth location-based recreation enhancement strategy is the association of appropriate visitor access to natural habitat areas with and on the edges of the Delta. Three existing natural habitat areas have the potential of providing expanded environmental education and nature-appreciation opportunities: the Jepson Prairie/Calhoun Cut area at the head of Cache Creek, the Yolo Basin Wildlife Area east of Davis, and the Stone Lakes State Park and National Wildlife Refuge. These three natural habitat areas, in combination with the previously identified focal point areas, are important assets of the greater Delta. They all have the need for improved visitor access and interpretive facilities.

4.3.5 Delta-Urban Edges

The final location-based recreation enhancement strategy is the establishment of Delta-serving and urban recreation areas, as well as natural habitat zones around the edges of the Delta between adjacent urban areas—from Stockton around to Antioch and Bethel Island, the north edge of Tracy and Lathrop, and in selected locations such as Rio Vista. It is recommended that criteria be developed to assist in locating this interface zone (open space corridor) generally in conjunction with existing urban limit lines, in an area that would optimize its value for habitat enhancement with park nodes and interconnecting trails.

4.4 Potential Operational Solutions

Among the opportunities and constraints discussed previously is the lack of a Delta brand or overall marketing strategy. The average potential visitor has to overcome a number of barriers in order to recreate in the Delta—it's hard to see, there's no main entrance or focal point for information and activities, and facilities are sparse, spread out, and hard to access. As an example, the California Trade and Tourism Commission (CTTC) groups the Delta in with the Central Valley, as one of 12 travel regions CTTC promotes throughout the state, rather than promoting the Delta as its own unique travel region.[96]

In order to take advantage of expected population growth and trends toward more resource-based recreation, private enterprise owners will need assistance in marketing, development, funding, permitting, and understanding the myriad regulations which control operations and development in the Delta. Currently, there are numerous organizations trying to overcome these barriers, including Discover the Delta Foundation and the Delta Chamber of Commerce. These organizations are small, underfunded, and limited in scope.

The Delta needs a well-funded "facilitator" organization that can assist visitors in accessing the Delta's many offerings, help brand and label the Delta, and support the economic development of businesses that serve visitors. Given the already myriad of public agencies and private organizations which operate in the Delta, it would be recommended that an existing organization take on this overarching economic development/marketing role. This expanded existing organization could promote the Delta in a number of ways, including those listed below.

- Help form and organize wine tours, farm tours, and boat tours.
- Develop and install Delta signage and visitor amenities.
- Operate visitor centers or kiosks at entry points to the Delta.
- Operate a website and social media linking potential visitors to activities, festivals, and facilities.
- Offer training and professional development support for local businesses.
- Serve as a clearinghouse for funding opportunities for local businesses, including marinas, farms, bed and breakfasts, restaurants, and retail shops.
- Link the boating organizations to the fishing organizations to the wine organizations to the farm stands to the tour operators to overnight accommodations to allow visitors to easily assemble weekend or week-long itineraries to take advantage of all the Delta offers.

[96] The twelve regions are North Coast, Shasta Cascade, Gold Country, San Francisco Bay Area, Central Valley, High Sierra, Central Coast, Los Angeles, Orange County, San Diego, Inland Empire, and Deserts. http://www.visitcalifornia.com/Explore/

There are many types of organizations which could fill this void: nonprofit organizations, public agencies, public/private partnerships, and others. The Discover the Delta Foundation has built a farmer's market/information center at the junction of routes 160 and 12, and has plans for a visitor's center. They may be able to partner with others expand this concept to other gateway areas. A Joint Powers Authority could be developed by Delta counties, cities, and state agencies which own or operate recreation areas in the Delta to provide one-stop visitor information services, similar to the "311" number system operated by the City of Sacramento.

The Delta Protection Commission, as mandated by SBX-1,[97] is currently completing a feasibility study for a National Heritage Area (NHA) and determining what that designation might mean for the Delta. A National Heritage Area is designated by Congress as "a place where natural, cultural, and historic resources combine to form a cohesive, nationally important landscape."[98] National stature would be achieved through NHA designation, enabling the Delta to gain visibility as a destination for persons as close as the Bay Area and Sacramento region, as well as on a national and international level. NHA designation can also be used as a marketing tool, to help brand the unique aspects of the Delta, such as its waterways and levees, long history of agricultural production, numerous recreational opportunities and diverse rural communities and cultural groups. Federal seed money is granted with NHA designation, which can be utilized to leverage other funds from public and private sources. NHA designation also has the capabilities to offer the following additional benefits.

- Provide sustainable economic development.
- Promote heritage tourism and recreation in the Delta that is aligned with existing land uses.
- Offer environmental and cultural interpretation and educational opportunities.
- Facilitate partnerships to undertake projects such as historic preservation with the consent and involvement of willing landowners.
- Develop necessary visitor amenities in the Delta such as waste receptacles, public restrooms and directional signage.
- Improve local quality of life and retain local control.

Senator Dianne Feinstein introduced S.29: Sacramento-San Joaquin Delta National Heritage Area Establishment Act on January 25, 2011,[99] while Rep. John Garamendi introduced H.R. 486 on January 26, 2011.[100] Both bills would establish the Sacramento-San Joaquin Delta National Heritage Area and designate the Delta Protection Commission as the management entity.

The matrix below presents a listing of existing organizations that could potentially adopt a facilitator role and the criteria that could be used to evaluate which organization could best move forward in this role. Existing organizations that are operating currently in the Delta and may have existing alignment with this role include Discover the Delta Foundation, State Parks, the Delta Protection Commission, the Delta Conservancy, and cities and counties. One particular organization is not recommended at this point, but the baseline scenario assumes that such an organization will be developed and made operational within the next 10 years. Theoretically, any of the organizations could be assisted through funding from future Delta capital projects.

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[97] Senate Bill X7 1, Sacramento-San Joaquin Delta Reform Act of 2009 (Simitian and Steinberg). Additionally, Delta Vision Strategic Plan, Strategy 2.1, October 2008 (www.deltavision.ca.gov)
[98] http://www.delta.ca.gov/res/docs/InfoSheet_NHA.pdf
[99] http://thomas.loc.gov/cgi-bin/bdquery/z?d112:SN00029:
[100] http://thomas.loc.gov/cgi-bin/bdquery/z?d112:h486:

Table 38 **Delta Recreation Facilitator Opportunities and Constraints Matrix**

	Potential Facilitator						
	Existing Local Control/ No Central Authority	Existing Nonprofit Organi-zation (i.e. Discover the Delta Foundation)	State Parks	Delta Con-servancy	National Heritage Area with DPC as manage -ment entity	Public/ Private Partnership (funded by local assessment e.g. Downtown Partnership)	Delta Economic Development Joint Powers Authority (cities, counties, state agencies)
Criteria							
Public/ Private	Both	Private	Public	Public	Public	Private	Public
Funding Potential	As exists	Fundraising potential	Limited	Limited	Matching federal funds	Assessment District on local businesses	Funded by partner agencies - limited
Existing Mission	Yes	No	Partial	Partial	Partial	No	No
Allow for central marketing of Delta	No	Yes	No	Maybe	Yes	Yes	Yes
Produces stability/ encourages facility growth/ improvements	No	Yes	No	Maybe	Yes	Yes	Maybe
Help alleviate use conflicts	No	Maybe	No	Maybe	Maybe	Maybe	Yes
Can promote/ produce additional festivals/ special events	Yes	Yes	With partners	With partners	With partners	Yes	Yes
Can identify and establish gateways	Yes	Yes	Maybe	Yes	Yes	Yes	Yes
Act as clearinghouse for information for private entrepreneurs	No	Yes	No	Yes	Yes	Yes	Yes

A key issue with all of the alternatives is their ability to generate adequate ongoing funding that can develop, market, and, potentially, operate improved facilities and activities described in this report.

4.5 Visitation Potential

A market demand-based model of visitation for current conditions was described above. This model is based on population, participation rates, activity days, and market capture rates. The same model can be used to predict visitation in the future, making adjustments to participation rates and market demand capture rates based on the principles and assumptions discussed above, as well as on general recreation trends that may influence recreation participation rates in the future, also discussed above. General assumptions for this baseline scenario forecast follow.

- Market Area population will increase by approximately 50 percent between 2010 and 2050.
- Approximately 20 percent of the future recreation use will trend towards developed urban park-related, 30 percent right-of-way-related, and 50 percent resource-related.
- There is a trend away from consumptive recreation (i.e., hunting and fishing) and towards non-consumptive wildlife recreation (i.e., bird watching and nature photography).
- Increasing participation in agri-tourism is likely.
- Gas prices will continue to increase, with a responding trend towards recreating closer to home.
- Boating trends will shift towards non-motorized boats (i.e., more canoe/kayaks) in protected waterways.
- The proposed Great Delta Trail will be completed.

Based on these trends, quantitative visitor-day projections have been developed for the baseline scenario and are presented in Table 39. Note that this scenario does not represent status quo (i.e., disinvestment and stagnating visitation), but represents a conservatively optimistic perspective which includes the assumptions that follow.

- Visitation is based on overall trends described above.
- There will be increased investment to address deferred maintenance of existing facilities.
- There is enough capacity within existing waterways to capture growth.
- In most instances, growth in recreation activities will keep pace with population increases, with additional growth in wildlife related, non consumptive activities, and slowing growth in motor boating, fishing, and hunting.
- If disinvestment in facilities and stagnation continue, visitation may not keep pace with population growth, as seen has been seen over the past 20 years.

Table 39Summary of Predicted Visitor Days under Baseline Scenario (in millions)

Activity Type	2010	2020	2030	2040	2050
Resource Related	7.6	8.3	8.9	9.5	10.0
Right-of-Way/Tourism Related	2.1	2.4	2.6	2.9	3.1

4.6 Economic Potential

4.6.1 Recreation Spending

Based on a quantitative framework, estimates have been made of potential future recreation levels and associated spending in the Delta. As discussed above, recreation participation trends and Delta competitiveness over the next 40 years were considered. This baseline scenario forecast will be against which potential impacts to the Delta recreation economy are measured. Again, the baseline forecast assumes that resource quality and recreational facilities are maintained such that the Delta retains its current level of competitiveness as a recreation destination.

Under the baseline scenario, recreation visitation in the Delta (including resource-related recreation, ROW recreation, and tourism) increases by roughly 3.4 million visitor days, or about

35 percent, over 40 years. Assuming that current visitor spending patterns remain unchanged and Delta business growth accommodates recreation-related spending increases, baseline visitation growth is estimated to increase spending in the Delta roughly $78 million (2011$) to about $329 million (2011$) by 2050.

4.7 Key Findings

- When attracting visitors and expanding recreation access to waterways and landside recreation improvements, potential negative impacts on agriculture from increased tourism and recreation can be minimized by focusing recreation uses and activities through expansion of existing recreation sites, development in Legacy Communities, and creating buffer areas adjacent to agriculture..
- The future growth of recreation in the Delta consists of five location-based strategies which would emphasize:
  - Delta waterways, specialized by boating type;
  - Dispersed, small points of interest and activity areas, such as marinas, farmer's markets, wineries, restaurants;
  - Focal point complexes, such as Legacy Communities or Bethel Island/Jersey Island/Big Break;
  - Natural habitat areas; and
  - The edges of existing and emerging urban areas that surround the Delta, such as Stockton, Tracy, and Lathrop.
- A significant operational constraint for future growth in recreation demand is that there currently exists no Delta brand, overall marketing strategy, or significant-scale focal point area. An existing organization should be designated as a Delta recreation and tourism marketing and economic development facilitator..
- If resource quality and recreational facilities are maintained such that the Delta retains its current level of competitiveness as a recreation destination, baseline forecasts for visitation show increases of 3.4 million visitor days, or about 35 percent, over 40 years.
- Assuming that current visitor spending patterns remain unchanged and Delta business growth accommodates recreation-related spending increases, baseline visitation growth is estimated to increase spending in the Delta roughly $78 million (2011$) to about $329 million (2011$) by 2050.

5 Impact of Policy Scenarios

Four possible policy scenarios are qualitatively evaluated as to their primary elements and their potential positive and negative impacts on recreation.

5.1 Policy Scenarios Impacts on Recreation Potential

5.1.1 Assumptions Under All Scenarios

In Chapter 5, different policy scenarios were presented on which to base analysis for future economic impacts. Although not explicitly discussed, it is assumed that the purpose of any of the scenarios other than the baseline is to achieve the stated purpose of the Delta Reform Act and that the policies would achieve the coequal goals of water conveyance and habitat protection. Thus, under all scenarios, it is assumed explicitly as follows.

- Water quality in the Delta will improve overall (though salinity intrusion may still be a factor).
- Fisheries will be improved.

- The project will be mitigated appropriately (suggestions to follow in later sections) for potential impacts to recreation, the Legacy Communities, and the economic sustainability of the Delta.
- Water exports from the Delta will continue.

5.1.2 Isolated Conveyance Scenario

In Chapter 5, the Isolated Conveyance Scenario was described including the following Delta impacts.

- Five new water intakes would be built along the Sacramento River between Clarksburg and Courtland.
- A new forebay would be constructed near Courtland where water from the five intakes would be collected and then pumped into an isolated conveyance pipeline under the Delta, extending to a new afterbay near the Clifton Court Forebay.
- Land would be removed from agriculture uses for the intake-pumping stations and the forebay and afterbay.
- Approximately 8,000 acres of agricultural land would be utilized in Sacramento and San Joaquin counties with the footprint of the isolated conveyance.

This scenario would have a number of impacts on existing and future recreation uses, some potentially positive and others negative, including the following impacts.

- Since the water intakes would be upstream from the confluence of the Sacramento and San Joaquin rivers, it is expected that salinity in the water at the confluence of the two rivers and further south will increase. Water quality would decrease in the resulting relative stagnant waterways. This change in water salinity and quality will likely impact fishing, boating, and hunting in the lower Delta.
- The pumping intake stations will introduce an “industrial” quality to approximately 10 miles of the Sacramento River. This will create significant visual impacts to this rural scenic stretch of river. In addition, the sound and night lighting related to these facilities will have an impact on the existing Legacy Communities. Together these impacts will reduce the Delta-as-a-Place character and the value of the Delta as a tourism destination.
- Moving the intake of fresh water to the north will likely have a beneficial impact on fisheries by allowing a more natural outflow of the remaining water out to sea. This move could improve fishing in parts of the Delta.
- It is unknown how the loss of agricultural lands would affect hunting opportunities, based upon long-term land use of the lands needed for construction.

5.1.3 Habitat Conservation Scenario

The habitat conservation scenario was described in Chapter 5 with impacts resulting from the following project elements.

- More frequent flooding and improved fish passage along 22,000 to 48,000 acres in the Yolo Bypass with the intention to improve fisheries
- Creating approximately 10,000 acres of new floodplain along the San Joaquin River using setback levees
- Restoring tidal marsh habitat on up to 65,000 acres in agricultural land throughout the Delta
- Natural Communities Protection, including converting 8,000 acres of rangeland to natural grasslands, restricting 32,000 acres of agriculture to “wildlife friendly” practices, and converting 700 acres of rangeland to vernal pools and alkali wetlands
- Restoring approximately 20 miles of channel margin along North Delta waterways through setback levees and shallow water habitat

The number of potential impacts on future recreation from this scenario may include any of the following.

- Creating the larger acreage (50,000± acres) of tidal marsh at the south end of the Delta could have devastating effects on salinity in the South Delta, as well as create strong currents in the channels leading to this area. Both would have significant impacts on boating and fishing. In addition, likely impacts on agriculture lands could reduce hunting opportunities.
- Specifics regarding channel margin improvements are not described. Most of these impacts can be avoided or mitigated through appropriate design. Potential conflicts could arise from reducing or eliminating windsurfer access, creating use restrictions on other forms of boating, eliminating State and county park facilities with access to the river, and restricting shore fishing.
- The conversion of agricultural lands to habitat could decrease hunting opportunities if farmland conversions are of lands also used for hunting.
- Impacts on general tourism are uncertain, as the effect on Legacy Communities is unclear.
- Details regarding the San Joaquin River floodway are not described. If adequate in width, it could accommodate natural vegetation, trails, and recreation opportunities similar to the American River Parkway. If limited in carrying capacity, it could be restrictive regarding these recreation elements as is the Yolo bypass between Davis and West Sacramento.
- Increased wildlife viewing/photography and paddle sports and other nature-associated recreation, if restored habitat areas also include public access facilities.
- Yolo Bypass fisheries amendments may negatively impact existing hunting clubs in the area.
- Increased fishing will likely occur due to better fisheries.
- Boating overall could increase with increased habitat and water quality.
- Camping would increase to support increasing nature-related recreation, if new sites and successful synergies can be established.

5.1.4 Flood Control Scenario

The flood control scenario was described in Chapter 5, with two general possibilities:

1. Flooding six central Delta islands: Webb, Venice, Empire, Mandeville, Medford, and Quimby, and leaving them in open water
2. Increasing levee upgrades, including levee upgrades around the Legacy Communities

The number of potential impacts on future recreation from the flooded-island scenario may include the considerations listed below.

- The winding, protected, freshwater channels and waterways are the primary appeal of the Delta to boaters. Substituting a large open body of water at this proposed location will severely affect the existing boating use, and have very little offsetting use. The existing uses in this area are fishing, water skiing, personal watercraft use, speed boating, house-boating, cruising, and, to a limited degree, windsurfing.
- While a large open body of water would have severe negative effects on all these users, the open water area could arguably be more conducive to sailing. There are a number of factors, however, that will minimize sailing as a potential substitute use.
  - The flooded islands, if similar to existing flooded islands, will have water hazards, snags, and partially-submerged debris, making them dangerous to less knowledgeable boaters.
  - Most Delta boaters are from the Bay area, where sailing is far superior and closer with many adequate local marinas which, at present, are not fully occupied.

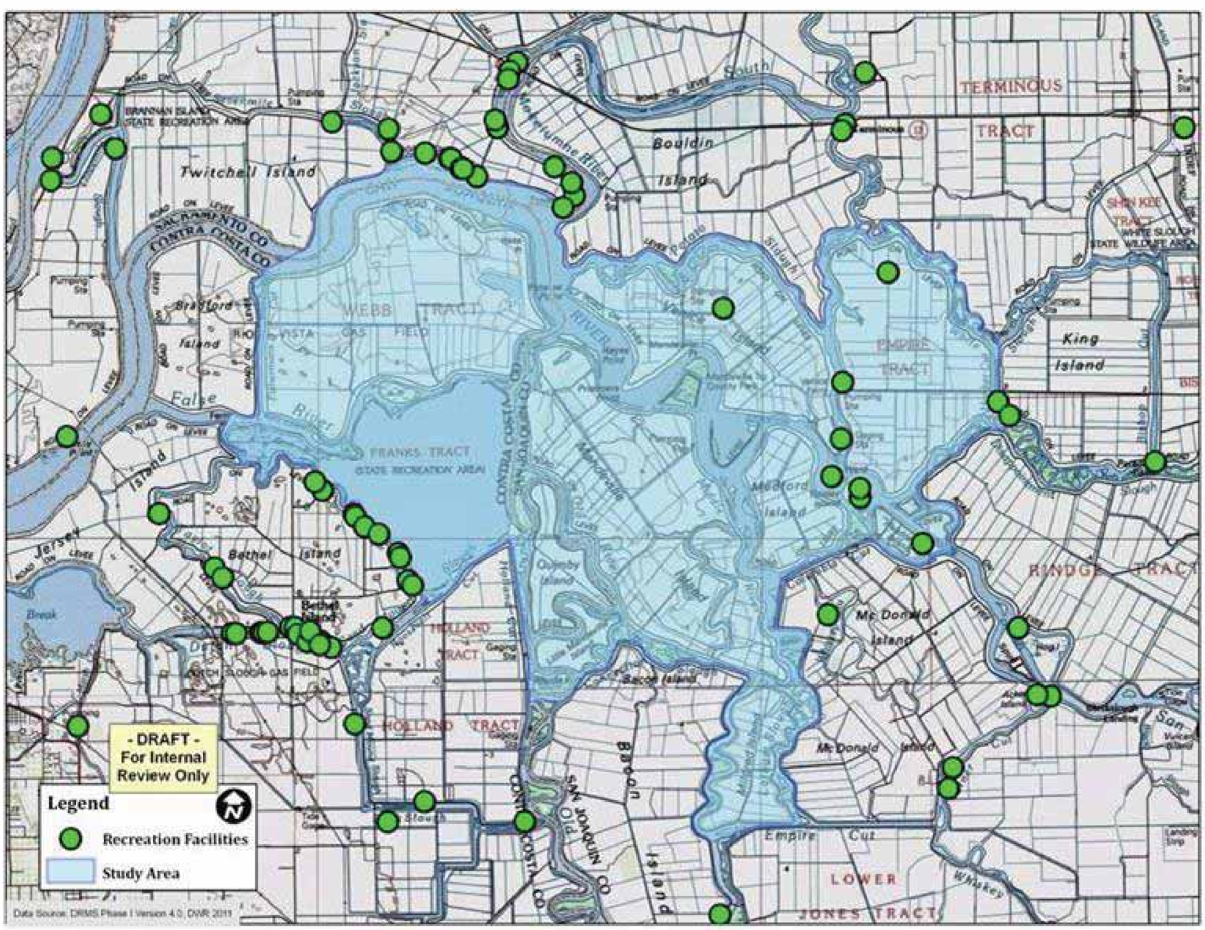
- Those boaters in the Sacramento metropolitan area who enjoy sailing are primarily berthed at Folsom Lake, which has more favorable winds and higher water quality than found in the six-island area.
- Sail boat densities on the water are lower.

- Approximately 40 percent of all the marinas in the Delta are clustered around or near this potential area and another 5 percent are along the San Joaquin River from Pittsburg to Antioch. These marinas are also, on average, larger than those in other parts of the Delta. The resulting negative impact to the largest single recreation activity in the Delta could be very severe. See Figure 28 which overlays existing marinas and recreation facilities over the six-island flood scenario.
- This open water will have unknown changes to fisheries, which will affect anglers.
- The elimination of hunt clubs on those islands will reduce hunting.

The increased levee upgrade scenario may have a number of potential impacts on future recreation, including the following impacts.

- Better protection of marinas allowing investment in facilities
- Increased protection of Legacy Communities, resulting in more right-of-way/tourism activity
- Unknown changes to fisheries

Figure 32 Existing Recreation Facilities in the Vicinity of Six-Island Flood Scenario



5.1.5 Regulatory Changes Scenario

Proposed regulatory changes are not known at this time. The following potentials could have a negative effect on recreation.

Increased Regulation

- Regulations against water, sewer, and building developments would make it difficult for both existing and new enterprises to locate within the Delta or to respond to changing market demands. These restrictions could adversely affect park expansions, marinas and related resorts, Legacy Communities, wineries, and direct sale of agriculture products, most likely creating further stagnation in recreation and tourism visitation.
- Blanket prohibitions against further development within the Secondary Zone could have an unfavorable impact on the park and recreation values around the edges of the Delta.
- Continuing and/or increasing restrictions and regulations on dredging and vegetation controls in and around marinas could have significant impacts on such recreation providers.

Decreased Regulation

- The reduction or removal of land use, historic preservation and agriculture protection regulations could affect the scenic values of the Delta and subsequent tourism use.

5.1.6 Policy Scenarios Impacts Summary

Table 40 presents a summary of predicted potential impacts to recreation and tourism by the policy scenarios described above, with range estimates of potential impacts to visitation in 2050, as compared to the baseline scenario presented in Section 4. Note that these impacts are presented in relationship to population growth, so a “Flat” trend would keep pace with population growth, while “Increase” would grow faster than population. “Decrease” would grow slower than population and may or may not represent an actual decrease in raw numbers of visitor days.

Table 40 Predicted Trends in Major Recreation Categories under Policy Scenarios Conditions

	Policy Scenarios				
Activity Type	**Isolated Conveyance**	**Habitat Conservation**	**Flood Control – Six Islands**	**Flood Control – Increased Levees**	**Regulatory Changes**
Resource Related					
Boating	Decrease	Increase	Decrease	Flat	Decrease
Fishing	Flat	Increase	Decrease	Flat	Decrease
Hunting	Decrease	Flat/Decrease	Decrease	Flat	Flat
Wildlife Viewing/Outdoor Photography	Flat	Increase	Flat	Flat	Flat
Camping	Decrease	Increase	Decrease	Flat	Flat
Right-of-Way/Tourism Related	Decrease	Flat	Flat	Increase	Decrease
Urban Parks Related	Flat	Flat	Flat	Flat	Decrease
Overall	Decrease	Increase	Decrease	Flat	Decrease
Potential Visitation in 2050 (millions)	11.6 – 12.1	13.7 – 14.8	10.6 – 12.0	13.2 – 13.4	10.1 – 11.6
Potential Change in Visitation as Compared to Baseline	-11% - -7%	5% - 13%	-19% - -9%	1% - 2%	-23% - -11%

The probable future condition of the Delta will not, however, occur as a result of a single policy scenario, but of necessity, will be a combination solution. Among these various scenarios, there is an opportunity to avoid the largest potential negative impacts and to emphasize positive solutions.

5.1.7 Economic Benefits/Projections

An evaluation was made as to the probable scale of negative and positive economic impacts from various actions described in the scenarios. The scenario analysis relies on professional judgments concerning the positive and negative effects of the analytical scenarios described in Chapter 6 and should be considered order-of-magnitude, illustrative estimates. The scenario impacts range from increases in recreation spending in the Delta of roughly 14 percent, a positive impact of $50 million, to decreases in recreation spending in the Delta of 23 percent, a negative impact of $77 million, in 2050.

- The isolated conveyance scenario could lower recreation spending in the Delta by 9 to 12 percent, a negative impact of $29 million to $40 million in 2050.
- The habitat conservation scenario could increase recreation spending in the Delta by 5 to 14 percent, a positive impact of $17 million to $47 million in 2050.
- The six-island open water scenario could lower recreation spending in the Delta by 11 to 23 percent, a negative impact of $35 million to $77 million in 2050.
- The increased levee scenario could increase recreation spending in the Delta by about 1 percent, a positive impact of $2 million to $4 million in 2050.
- The increased land use restrictions scenario could lower recreation spending in the Delta by 11 to 21 percent, a negative impact of $35 million to $71 million in 2050.

5.2 Impact Analysis and Mitigation Potential

5.2.1 Negative Impacts

Of all the potential negative impacts, our analysis indicates that the following five items are the most significant. They are listed in order of their impact magnitude. These major items are most likely significant enough that major changes to the project would be required, rather than simple mitigation measures.

1. *Regulation Changes.* If increased and burdensome land-use regulations prohibited most or all permits for remodeling or constructing commercial and recreation facilities, they would have the largest negative impact on recreation use in the Delta. At best, it would bring growth in recreation to a standstill in all but hunting and wildlife viewing/outdoor photography. It is quite likely that an actual decline in recreation levels would occur as facilities aged and became out of date.

2. *Six-Island Flooding.* As previously described, the purposeful flooding of the six islands, basically north and east of the existing open water area of Frank's Tract, could have a major impact on boating in the Delta. Over 50 percent of the Delta's marinas are located within or in close proximity to this area, and would suffer both direct and indirect negative impacts. Boating, fishing, hunting, camping, and tourism-related activities are all anticipated to be impacted.

3. *Salinity Increases in the Central and South Delta.* This possible impact is based upon the concern that an isolated conveyance which removes all export water at the north end of the Delta will create increased water stagnation and salinity in the central and south Delta. If that occurs, it would affect boating, fishing, and camping.

4. *Large Tidal Marsh in South Delta.* A large-scale tidal marsh area in the south Delta would likely increase salinity and strong currents in the waterways leading to the south Delta. It would affect boating and fishing, and may impact hunting due to the loss of agriculture properties jointly used for hunting.

5. *Intake and Pumping Stations—Clarksburg to Courtland.* These pumping stations, if placed along the river at this location, could seriously impact the Delta-as-a-Place recreation and tourism. This is one of the primary entry and destination areas in the Delta; the industrial scale, noise, and night lighting could transform its character.

In addition, there are other lesser impacts as previously described. These can most likely be mitigated through careful planning.

5.2.2 Positive Impacts

There could be positive impacts to recreation within future scenario predictions. Specifically, three elements of certain scenarios would likely have the most positive influence on recreation use.

1. *Fishing Enhancements.* The various fishery enhancements proposed in the habitat conversion and isolated conveyance scenarios are expected to help restore fisheries, and thereby elevate fishing use.
2. *Wildlife Viewing/Nature Study.* The proposed expansion of natural preserves and wildlife-friendly agriculture would increase the opportunities for wildlife viewing and nature study.
3. *Delta-As-A-Place Enhancement.* The increase in wildlife viewing opportunities will likely have a synergistic effect on the Delta-as-a-Place visitation.

5.2.3 Potential Mitigation Measures

This report has analyzed existing recreation uses and projected a baseline forward to 2050. It also has analyzed the negative and positive impacts to the baseline from various elements of proposed scenarios. Analysis has also been made of actions that could be taken to increase recreation visitation over the baseline, or to mitigate for some unavoidable impacts. The Recreation Enhancement Plan outlined in this report describes such actions. The four most important enhancement measures are thought to be the following.

1. There is a long standing need for a Delta-focused public recreation, planning, development, and management facilitator organization. As early as 30 years ago, 41 economically feasible recreation improvements, studied by the Department of Water Resources, were not developed because of the lack of an entity that could be responsible for their care. As a part of this report, major recreation improvements have been identified that could stimulate visitation and economic benefits. A responsive, Delta-wide organization is vital to accomplishment of such a program. To be effective, this organization needs an assured funding source that can be relied upon for both development and operation. The organization also needs to have the authority to assist in marketing the Delta, to facilitate actions by private enterprise, and to assist with, or take over, the operation of state and local recreation facilities.

2. Plan and assist with the development and marketing of the two focal point complex areas identified in this report. Priority and emphasis should be given to catalyst features that help create settings for private enterprise developments, as well as develop synergistic recreation improvements.

3. In coordination with bordering communities, plan urban limit lines along the Delta edge, with guidelines for future urban development in coordination with Delta buffering park/open space/trail areas.
4. Plan and assist with the development and marketing of smaller dispersed recreation facilities, including creating settings for Delta-related private enterprise recreation development.

It is anticipated that the formation of the facilitator organization and accomplishment of the general programs outlined over the next 10 years would result in the stimulus of recreation visitation and resultant economic activity, in an amount over the baseline scenario.

5.3 Key Findings

- Possible policy scenarios are qualitatively evaluated as to their primary elements and their potential positive and negative impacts on recreation.
- Scenarios evaluated may affect recreation visitation by a range of a decrease of approximately 23 percent to an increase of approximately 13 percent over the baseline scenario, with the largest potential for negative impacts from increased regulatory changes and the largest potential for positive impacts from the habitat conservation scenario.
- These visitation changes may result in a range from increases in recreation spending in the Delta of roughly 14 percent, a positive impact of $47 million, to decreases in recreation spending in the Delta of 23 percent, a negative impact of $77 million, in 2050, as compared with the baseline forecast.
- The largest potential negative impacts would results from regulation changes, six-island flooding, salinity increases in the central and south Delta, creation of a large tidal marsh in the south Delta, and intake and pumping stations near Clarksburg and Courtland.
- Positive impacts could result overall through project enhancements to fishing, wildlife viewing, and nature study, and Delta-as-a-Place.